FIRST IN THE FIELD

Offshore

Underwater Trencher Unveiled

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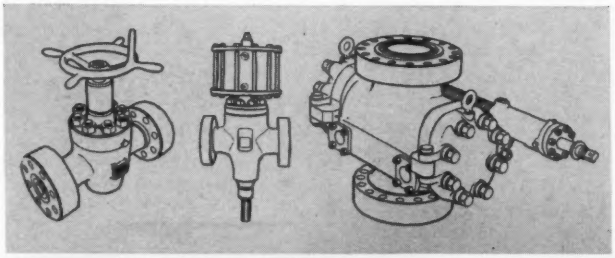

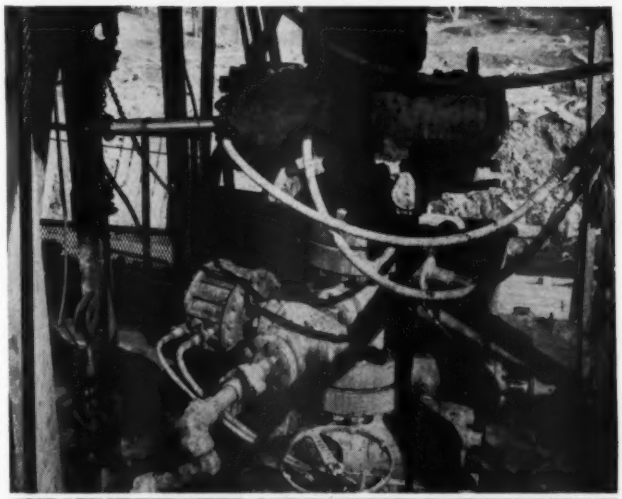

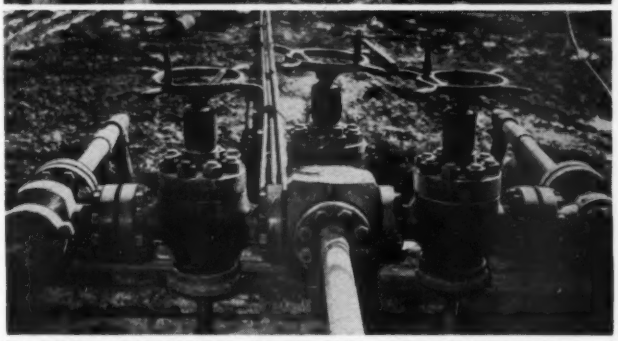

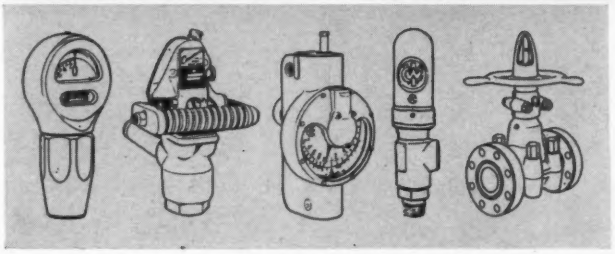

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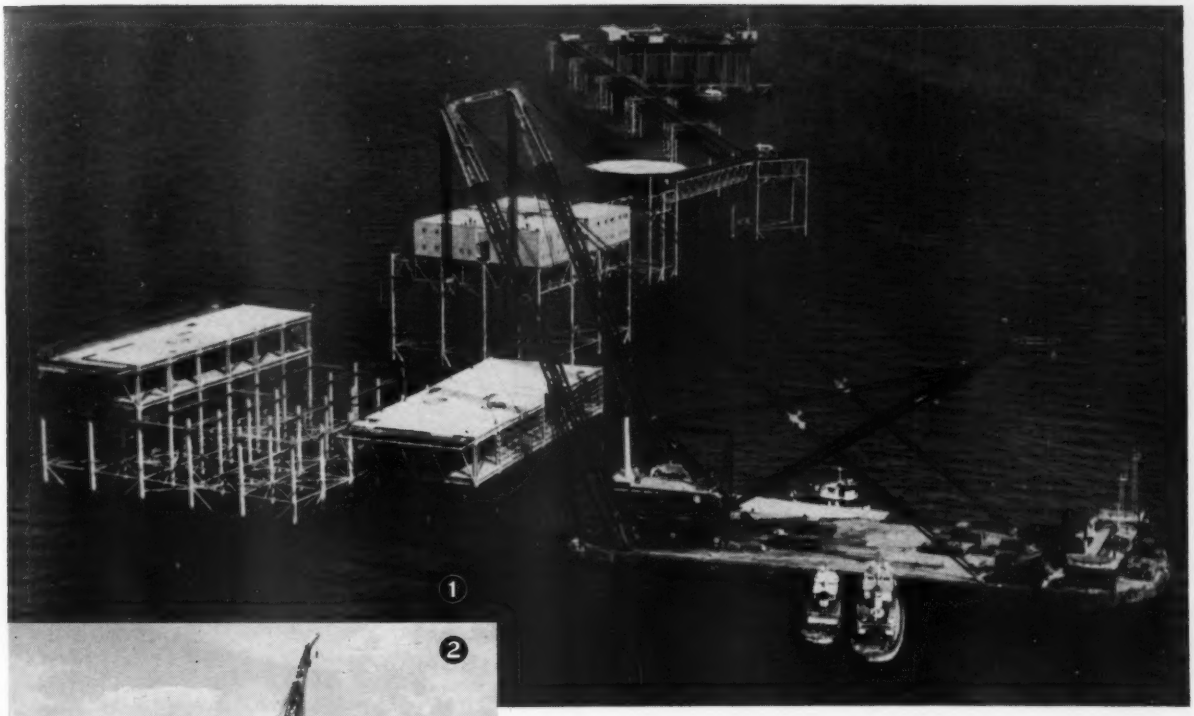

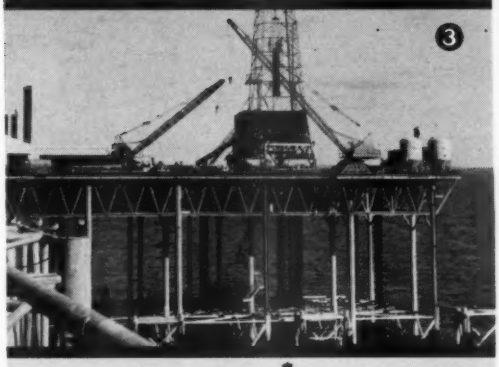

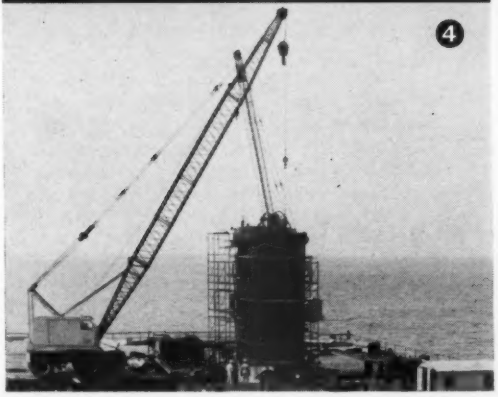

erecting "mile-long" offshore platform...

Derricks, revolvers, and mobile cranes teamed up to build this $30,000,000 offshore mining operation for Freeport Sulphur Co. Here's the photo story:

1. Entire deck section, weighing in excess of 700 tons, is eased into position by AMERICAN shear leg derrick. This offshore lift — one of the largest ever made — was handled by J. Ray McDermott Co.

2. Entire two-story housing unit is lifted into position by this AMERICAN barge-mounted revolver crane. Contractors Brown and Root handled this phase of the project.

3. Permanently installed on the drilling platforms are these two AMERICAN 300 Series pedestal-mounted cranes. They are used to transfer materials and supplies on and off the platform.

4. Traveling the length of the platform, this AMERICAN 500 Series self-propelled crane handles odd-lot lifting assignments. Here, it helps assemble huge sea boilers.

This is another example of AMERICAN HOIST leadership in the offshore industry. We will be pleased to discuss *your* platform-erecting or cargo-handling requirements, any time you say.

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Way offshore . . .

With the Publisher

Most of us oil patch peckerwoods have debts of one kind or another. But we have to pay them—or it'll be like selling thirty-two sixteenths in an oil well that comes in a gusher instead of the dry hole you figured on. You just don't do business that way!

But not everybody pays their debts.

I was reading the other day about our Uncle who resides up on the Potomac, and some figures on what he —we—owes seems plumb flabbergasting.

To begin with, the national debt is now past $286 billion. Add on state and municipal and county indebtedness and you get a figure of over $6,000.00 for each and every family in the U.S. The interest on the federal debt alone is said to be $9 billion annually.

Of course, it's hard for penny-pinchers like me to comprehend much more than a hundred bucks or so at a time, but some of the following sort of brings it all home to roost.

The national debt, it said in what I read, is so big that it requires a bureau of 3,000 employees, with an annual payroll in excess of $48 million, just to keep track of the paper work involved—as it all keeps going up!

And there's little chance that either the size of this bureau, or the bookkeeping expense involved, will get any littler. For the debt just keeps right on increasing, and it takes more and more folks working there just to keep up.

What this jigger writes that I'm reading after is that 95 percent of this debt was run up in Democratic administrations—only 5 percent under Republicans. Now, we're not about to start a political squabble here. All we want to know is how do us indebted citizens get together and bring the whole high-flying deal to a screeching halt. Figure it out and tell us when we . . .

See you next month!

Long John Latham

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Sandban Screen

new protection against sand production

Here is a cutaway section of Sandban* screen—a Dowell product that is designed to hold back unconsolidated sand while allowing normal production of well fluids. Notice the porous network of plastic-coated walnut shells supported inside and out by a slotted pipe.

Operators have reported success with Dowell-developed Sandban screen where all other attempts at sand control had failed.

Formation cleaning chemicals—even Super Mud Acid—can be used with Sandban screen in place. Ask your Dowell representative for full information. *DOWELL TRADEMARK

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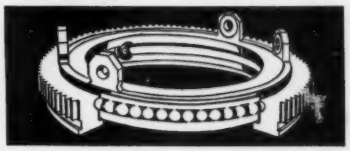
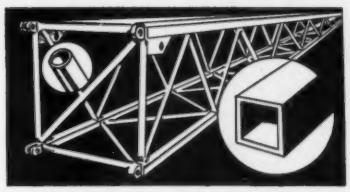


The new square-tubular-chord alloy boom is lighter and stronger—permits use of longer booms with flatter angles.



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PERFORMANCE COST	low, since you get high fill-up relative to material used.	moderate to high; some fill-up advantages	low initial cost; but cost may be high to obtain performance	low initial cost; no bridging qualities may make performance cost high	
SCOURING ACTION	excellent	fair	none	none	
PERFORATING QUALITIES	excellent, non-shattering	good	fair	good	
EASE OF PLACEMENT	good	good	good	good	
INERTNESS	chemically inert	soluble in some hydrocarbons	readily attacked by corrosive waters, acids, and alkali solutions	inert	
MELTING POINT	above 1500°F	300°F plus			
COMPRESSIVE STRENGTH	good	good	good	good	
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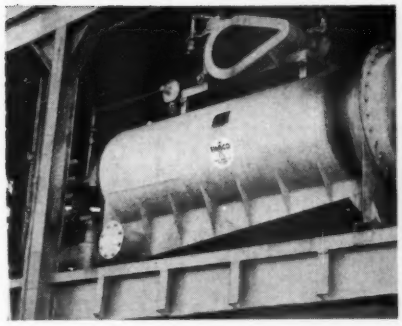
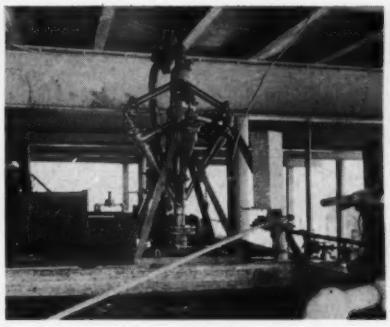
Three good ways to cut drilling costs

The three units shown here are important items behind the recent revolution in drilling fluids that has done so much to speed drilling and cut costs. Each is designed for a different problem but all are efficient and economical. Equally important, all are handled by SWACO -- the leader in mud-treating equipment.



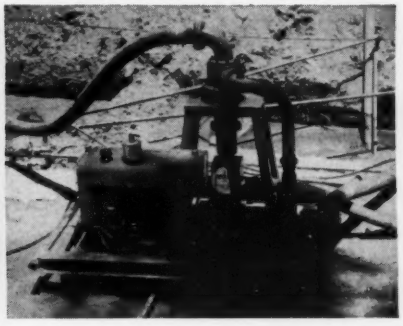
SWACO D-GASSER®

Operators frequently report saving the entire rental cost of a D-Gasser on a well in less than a day.
When mud is gas-cut, the D-Gasser saves money in many ways. It cuts time lost for circulating after trips. It reduces barite costs, it minimizes lost circulation costs and problems. It maintains mud pump efficiency and it actually makes possible the close control of mud weight and viscosity that results in faster drilling with increased safety.



CLAYJECTOR®

If you are using mud as heavy as 12 pounds per gallon, you can cut mud costs and increase drilling rate by using a Clayjector. This is a cyclone-type separation unit that is extremely effective at rejecting unwanted clays and retaining expensive barite.
In addition, since it makes possible the economical maintenance of a low-solids, low-viscosity mud, it actually permits a reduction in bit costs and drilling time.



D-SANDER®

The D-Sander greatly increases the life of mud pump parts and bits when sand or abrasive shale is being drilled. Since it removes virtually all sand-sized solids from the mud, excessive pump-parts and bit-nozzle wear — as well as many other problems — are avoided when a D-Sander is used. There is a size and type to fit every rig and drilling condition.

These descriptions tell just a few of the many ways you can cut costs by mechanical mud treating. For the full story on how you can profit, call your nearest SWACO representative or write us direct.

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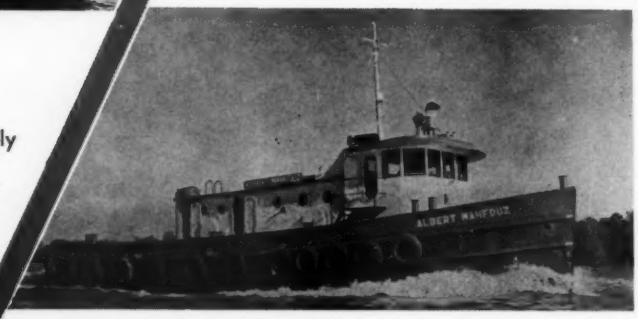

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Pipeline progress . . .

Underwater Trenching Machine Unveiled

Demonstrated on Orinoco River crossing, trencher is designed to ride along pipe, undercutting it and lowering pipe by controlled stages

When Phillips Petroleum Company decided to build a marine terminal to ship oil from their Marichal field in eastern Venezuela, they looked southward to the Orinoco River, one of the world's principal rivers, navigable to ocean ships for many miles. At the confluence of the Caroni River, roughly 120 miles inland lies the town of Puerto Ordaz, where some years earlier U. S. Steel had established a loading dock for shipping iron ore. Several miles up the Orinoco, the Venezuelan Government is building an integrated steel mill and a few miles up the Caroni a hydro-electric plant. An industrial complex is being born here in a previously primitive area.

While this area is ideally situated, there were problems. The Orinoco toward the end of the dry season (March) is a placid stream with well defined banks and is affected by ocean tides (roughly one foot). By the end of the rainy season (September), it's a different story. The river rises 40-ft. and overflows its banks and the adjacent lowland for several miles on both sides. A dock must be able to function at both levels. The riverbed slopes gradually away from the south bank and attains its maximum depth of 87-ft. at low water. At 200-ft. offshore the south bank rises steeply from —80-ft. to plus 20-ft. On the north side the floodway is about two miles wide, on the south only half a mile before rocky hills start rising abruptly. Economy dictated crossing the river and locating the dock and tank farm on the south side. Fortunately, a site was available about midway between the ore dock and the steel mill dock where the river was a mere 4,100-ft. wide at low water (at some places 2 and 3 miles). Unforunately, the low water period was fast approaching and any delay would postpone the completion of the project a whole year.

At this point, Tellepsen Construction Company of Houston, was called in because of their successful record in laying and burying pipelines in Lake Maracaibo. Phillips required that the pipe (24" x .375") be coated and wrapped, and then encased in reinforced concrete to a minimum negative buoyancy of 40-lbs. per ft.

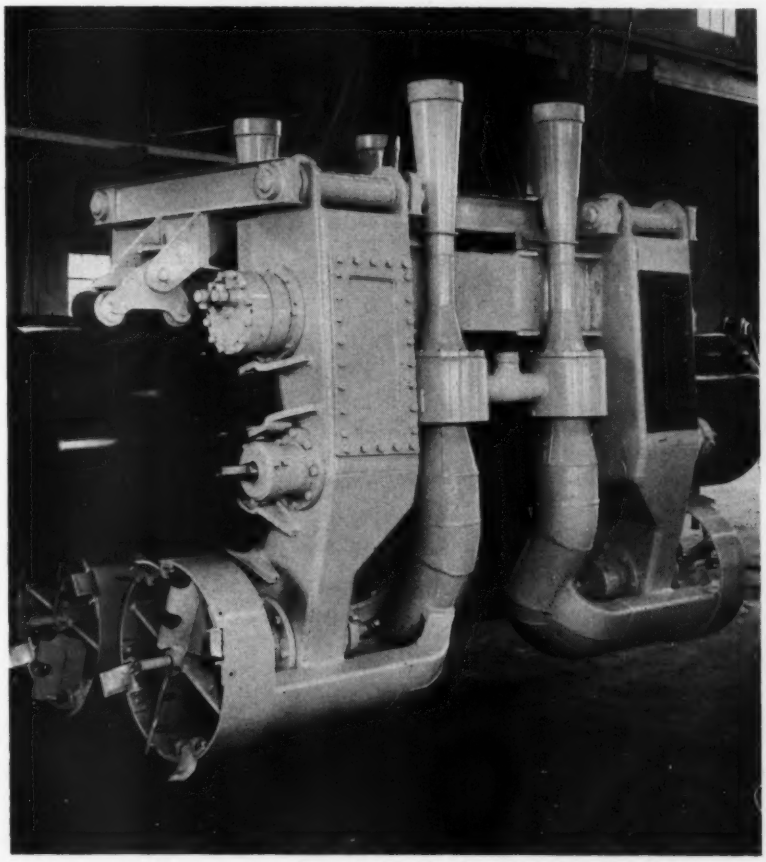
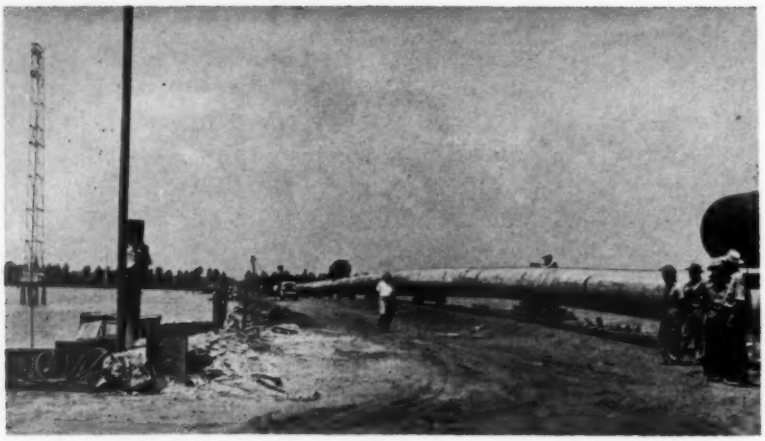


PHOTO DEMONSTRATES how Tellepsen trenching machine rides along pipe. Cutters are made in various forms to suit bottom formations encountered, and are driven by power units located at the top of each arm, through a system of gears and chains. To control weight of the trencher on the pipe, it is suspended from a float.



ORINOCO CROSSING involved pulling over a mile of pipe—5,450-ft.—across the Venezuelan river. Line was lowered into the clay and sand of the riverbed a minimum of 15-ft., to prevent movement or undercutting of the pipe by current action.

(3" of concrete was used.) The line was to extend beyond the north bank 500-ft. and 850-ft. on the south side, a total of 5,450-ft. After placing, the line was to be lowered into the clay and sand of the riverbed a minimum of 15-ft. to the top of the pipe to prevent movement or undercutting of the pipe from current action. The line was to be tested ashore to 937 psi, and in place at 824 psi. After the 24" was lowered in place, a 4" line for future use was to be pulled into the same ditch.

Since the procedure of "pulling" a river crossing is well known, it presented no particular problem except at the south bank. A specified requirement was that the pipe should not be bent to a radius of less than 1,800-ft. The bank was too steep to meet this restriction so it was necessary to pre-dig a trench to ease the slope. Due to the caving nature of the soil, extensive excavation on land and in the water was required. The lowering of the pipe was done by a relative new method which warrants description here.

Tellepsen Construction Company, operating through a Venezuelan affiliate Trans-Caribbean, S.A. has in the past eight years laid some 500 miles of pipe in Lake Maracaibo, ranging in size from 3" to 30" and in water depths up to 115-ft. During the course of their operations the need for a new and better method of burying marine pipe lines became evident.

In 1957 such a machine was designed by Tellepsen engineers and built and completed in early 1958. This machine had to do two things: 1) excavate a fixed amount of any formation that could be dug without blasting, and 2) remove that excavated material entirely from the trench, so that the pipe could be lowered by gradual and controlled stages to whatever depth was required. Any public announcement of this machine has been withheld until now so that it could be first thoroughly proved in the field.

The first project undertaken was the installation and burying of 23,600-ft. of 16" pipe (the Boscan line) across Lake Maracaibo for Shell de Venezuela. This pipe was first coated with insulating concrete and then regular concrete to a finished diameter of 24-in. It was buried throughout its length to a minimum of 6-ft. and for a considerable distance, where it crossed the ship channel, as much as 24-ft. Water depths were from 6-ft. to 45-ft. and formations were encountered, ranging from mud and sand through stiff clay and soft rock.

So successful was this operation that Tellepsen was awarded a contract to lower three other adjacent lines crossing the channel which had previously been trenched-in by that many different methods. This gave a direct and quite favorable comparison of the new against the old methods. Two further lines were lowered in exceedingly hard bottom for a distance offshore to avoid damage from anchorage in the vicinity.

With three years background of experience, Tellepsen designed and built a new trencher for the Phillips job which does not vary greatly from the original (and more or less experimental model) in essential details. It does embody changes made in the prototype from time to time as well as changes which were not made but considered desirable.

Essentially, the trencher consists of two semi-circular arms which can be opened and closed around the pipe and held in either position by hydraulic cylinders. When closed the trencher is in contact with the pipe only thru rubber covered rollers. To control the weight of the trencher on the pipe, it is suspended from a cylindrical tank (or float) so the system can be maintained at from zero to any desired negative buoyancy.

To achieve objective 1) cutter heads are placed at the bottom of the arm so as to nearly meet underneath the pipe. These cutters are made in various forms to suit bottom formations encountered and are driven by power units located at the top of each arm, through a system of gears and chains. Thus, as the trencher is towed (by several different methods) along the pipe, a definite and controlled amount, usually, roughly, the diameter of the pipe being lowered, is excavated underneath the pipe. As stated, this has been proved in formations which could not be handled by other types of trenchers.

Objective 2), the removal of the excavated material, is accomplished by suction. This suction is achieved either by the action of a dredge pump or air or water eductors. The excavated material passes through circular or semi-circular inlets just behind the cutters, up vertical pipes and discharges out of the ditch where it cannot fall back under the pipe which is suspended behind the cutters. Spoil material can be deposited away from the trench at any desired distance.

The trencher is connected by pipes and/or hoses to an attendant barge on which are the various power units for supplying high pressure air, oil, and water, and also electricity, together with their necessary controls.

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NEXT MONTH

Offshore's Annual Review & Forecast NUMBER

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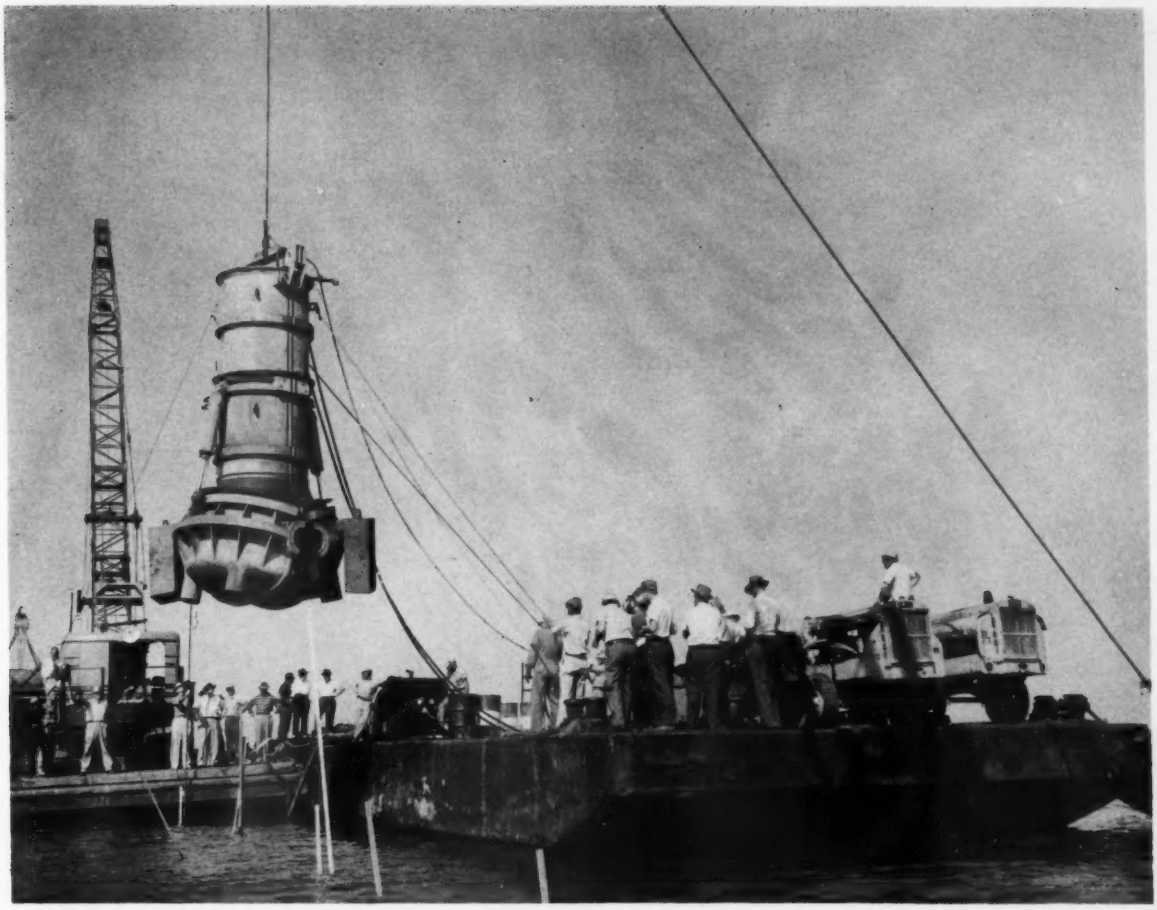

FIELD TEST OF EXPERIMENTAL CAISSON took place in Barataria Bay, near Grand Isle, La. Photograph shows the caisson about to be lowered over a 12-in. submerged crude line. Clamped over the line, the interior of the caisson provides a water-free working area for workmen who descend into it.

CAISSON SPEEDS UNDERWATER PIPE REPAIR

CUTS TIME, COST, ELIMINATES NECESSITY OF LIFTING PIPE ABOVE WATER

A caisson developed by Interstate Oil Pipe Line Company of Shreveport, La. offers a dramatic solution to the problem of making repairs or connections to pipelines in water up to 50-ft. deep.

Lowered over the undersea line, and clamped securely in place, the caisson provides a water-free working area for pipeliners handling the repairs or making the tap.

In its first test, repair of a small leak in a 12-in. crude line between Lake Washington and Pelican Island, in South Louisiana, took about one full day to complete. This compares with an estimated five days, if the line had had to be raised above the water.

How it works . . . When the leak in the 12-in. line was reported by a patrol plane, two barges were dispatched to the scene. One barge carried the caisson. The other mounted a dragline.

The line in the vicinity of the break was under about 5-ft. of water and 7-ft. of mud. After ditching on either side of the line, and jetting underneath, the caisson was lowered over the pipe with the aid of a diver. With the caisson clamped securely in place, the water was pumped out and a relatively dry working area was provided for workmen who went down into the caisson to repair the leak.

What it is . . . Constructed of ½-in. steel plate with stiffeners, Interstate's caisson is bell-shaped, 7-ft. in diameter, with a vertical split and pipe sleeves midway up the side of the split. When clamped around the pipe for actual work, it has a deck on which workmen stand inside it. A top section, 5-ft. in diameter and resembling a huge barrel, extends up 6-ft. Additional sections in 6-ft. and 12-ft. lengths, of the same diameter, can be joined to the top of the caisson for work in deeper water.

The bottom and top parts of the basic caisson are connected by a continuous neophrene rubber sleeve which permits opening and closing of the clamps. Two hydraulic rams connect the bottom and top sections. The rams, connected to a pump unit on the work barge, open and close the split section clamps about the pipe.

Advantages . . . The caisson is adaptable to different depths of water, and to different line sizes from 2-in. to 20-in. The basic unit weighs about 16,000 lbs., and is portable. In addition to saving time in effecting underwater repairs, its use eliminates the danger of bending the pipe when the latter is lifted out of the water for repairs.

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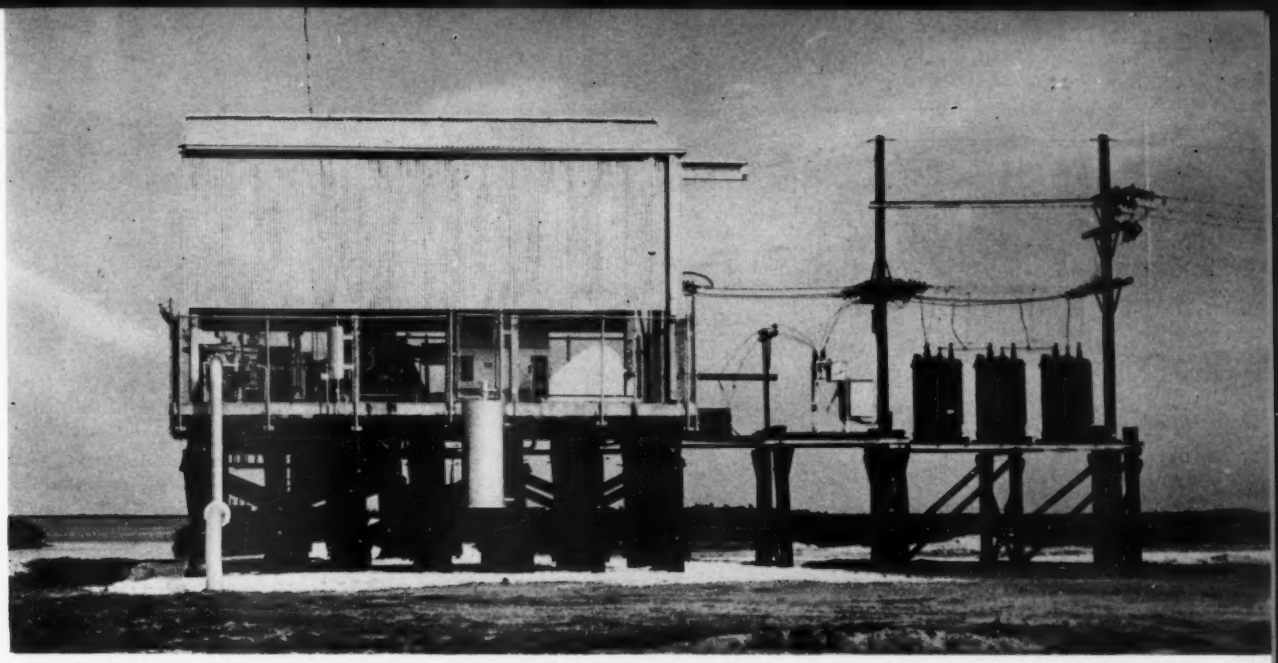


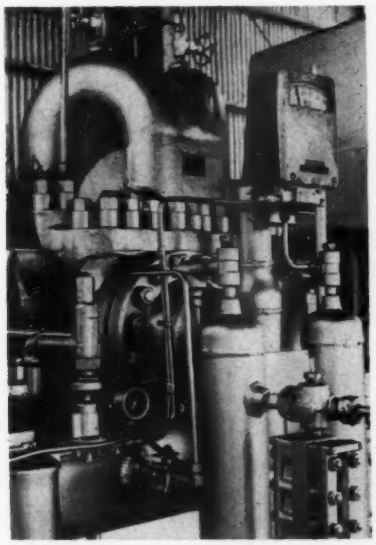
GRAND TERRE AUTOMATIC BOOSTER PUMPER STATION sits on lonely sand spit off coast of Louisiana. With it, Gulf Oil Corporation increased the capacity of its Bay Marchand-Ostrica pipeline system from 58,000 to 75,000 bpd.

AUTOMATION BOOSTS PIPELINE CAPACITY

GULF CAN MOVE 25 PERCENT MORE OFFSHORE OIL WITH UNMANNED STATION

On a sun-drenched day, it is a pleasant hour-and-a-half cruise by motor launch to a dab of sand and scrubby weeds adding a touch of brown to the blue-green of Barataria Bay, off the coast of Louisiana.

But even in the best of weather, the jaunt is time-consuming. When chill rains blast or high winds give birth to massive waves, the trip becomes a chore, to put it mildly.



INPUT DIAL shows crude coming into the Grand Terre station at 50 psi, a drop from the 700 psi at which it left Bay Marchand.

Gulf Oil Corporation has a booster station on the remote island, which is impressively named Grand Terre. But Gulf operating personnel in the area aren't too concerned with rough-weather trips to the offshore sand spit, for the installation is automatic —the only such booster station Gulf operates on a remote isle.

The value of the station is that though unmanned, it can operate by itself, signal for help when in trouble, and bypass itself until the difficulty is repaired. What's more, it can spell out its problems to any repairman when one finally does arrive.

Increased capacity . . . The unit was placed in operation last year to increase the capacity of Gulf's Bay Marchand-Ostrica pipeline system. Adding the booster station at Grand Terre increased capacity of the system from 58,000 to 75,000 bpd—and a further increase in capacity to 90,000 bpd will be accomplished by addition of another unit at Bay Marchand Station and a change of impellers at Grand Terre.

Area served . . . The oil being handled by this system comes primarily from Gulf's Timbalier Bay and offshore Block 21 fields, along with smaller quantities from Union Oil Company and The California Company in Bay Marchand and offshore areas.

Operation . . . Bay Marchand Station checks the gravity, temperature, BS&W, and measures the crude it receives before pumping it out to Grand Terre at a pressure of 700 psi or more. By the time the crude has passed under the waters of the Gulf and Caminada Bay, however, it arrives at Grand Terre at only 50 psi.

CONTROL PANEL lights guide J. J. LeBlanc, Gulf employee, to problems needing solution in operation of unmanned offshore station.

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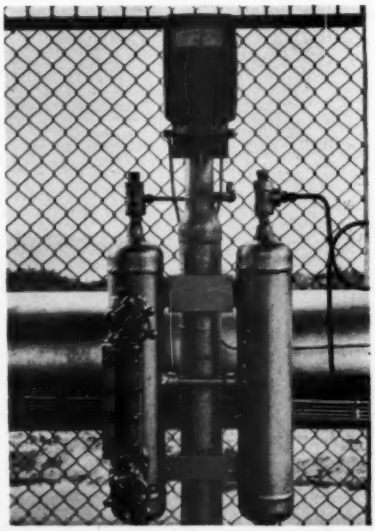
At Grand Terre, pressure is boosted to 525 psi by a 1,500 hp electric motor driving a centrifugal pump at 3,565 rpm. This unit, as well as a control station, sits high above the island on pilings, protected from even the most violent weather.

Inside the control station is a broad panel studded with lights marking such items as low suction pressure, electrical trouble, seal failure, pump vibration, and motor not running. Thus the station can quickly explain its needs to a repairman.

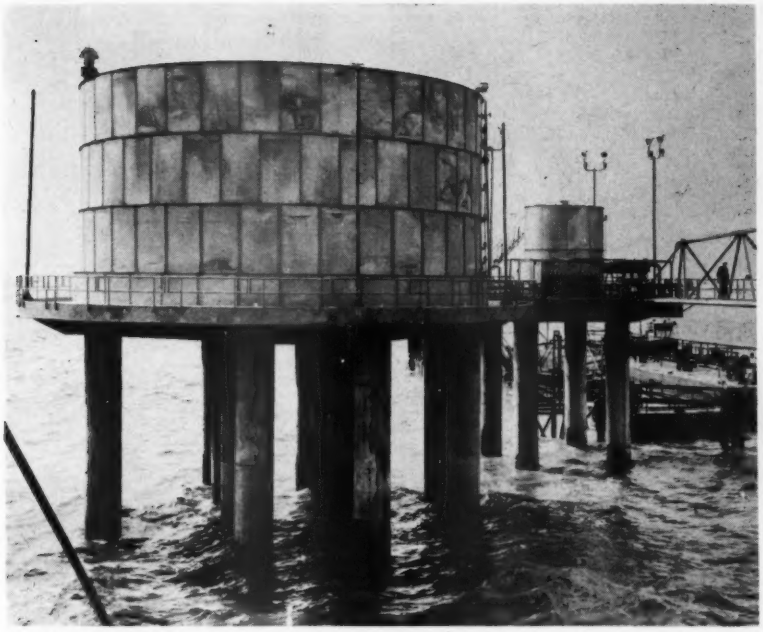
While there is no direct communication between Bay Marchand and Grand Terre, it is possible to tell when the remote station is down by observing the change in flow and increase in pressure at Bay Marchand. A reduction in flow at Bay Marchand will shut the Grand Terre station down, and it is started by increasing the flow at Bay Marchand until the flow instruments at Grand Terre cause the starting equipment to energize the motor.

Regular trips are made to the station once each week to pick up recording pressure and flow charts, and a trip is made approximately once each month by the electrical technician for routine maintenance work and minor adjustments.

An interesting sidelight on the installation of the station is the fact that actual construction was much easier than acquiring the leases on the land, as more than 100 persons had an interest in the island.



CRUDE LEAVES Grand Terre booster pumper station at 525 psi, after falling to 50 psi en route from Bay Marchand station. Note dial at top of photo.



CIRCULAR PRE-CAST CONCRETE PLATFORM, 70-ft. in diameter, supports 10,000 bbl. barge tank recently installed by Shell Oil Company in Eugene Island Block 18 field. Platform at right supports 500 bbl. "bad oil" tank and automatic custody transfer system.

LACT GETS TEST OFFSHORE

SHELL UNIT HANDLES PRODUCTION FROM 61 WELLS

Final testing is underway on Shell Oil Company's first lease automatic custody transfer (LACT) system in the open waters of the Gulf of Mexico.

The Shell unit, which includes tankage, meters, flow lines and barges, is the largest such installation off the Louisiana coast. It meters and checks about 8500 bbls. of crude and condensate per day from 57 oil and four gas-condensate wells in the Eugene Island Block 18 field. Gas production approximates 15,000 mcf daily.

Lease automatic custody transfer equipment was approved for use in Louisiana by the state's department of conservation in February, 1959, and Shell put into operation the state's first system in the Good Hope field shortly thereafter. The company has since installed similar equipment in several more fields.

Offshore installation . . . To support the new equipment, Shell built two concrete platforms—a round one 70-ft. in diameter supporting a 10,000 bbl. surge tank, and a second platform 35-ft. square supporting a 500 bbl. "bad oil" tank, a flow meter, sampling system and necessary pumps. The 10,000 bbl. tank is the largest erected by Shell in the Gulf.

The system does these things automatically:

1) Measures the amount of oil flowing from the wells.

2) Indicates a temperature corrected volume of oil to 60° F., even though the actual oil temperature may range from 20 to 120 degrees F.

3) Continuously monitors the oil being produced for basic sediment and water content to assure that it meets expected standards.

4) Diverts oil whose BS&W content exceeds standards into the "bad oil" tank, then sends it back to the heater treaters for reprocessing.

5) Removes gas and vapors from oil prior to metering.

6) Stores samples of oil produced.

7) Prints meter readings on the total volume of oil on a single run ticket, in this case once a month.

Reduced barge charges . . . Spokesmen for Shell say the biggest savings will be in reduced barge charges. The oil is barged from the location via

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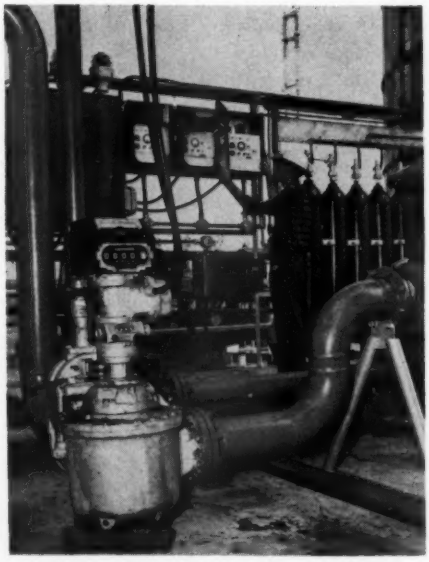
the Intracoastal Canal to Shell's Gibson, La. terminal. The 10,000 bbl. barge tank will permit the storage of at least one day's production when barges cannot be loaded due to inclement weather.

Central facilities . . . These latest installations are part of seven platforms which compose Shell's Eugene Island Block 18 central facilities, and lie 30 air miles southwest of Morgan City in 8-ft. of water. The facilities also serve an operating base for Shell's Mosquito Bay, Halter Island, Atchafalaya Bay and Eugene Island Block 8 fields.

Crews' quarters on one platform can house 34 men and there is a heliport atop the quarters. Another platform supports a warehouse, electrical generators, workroom and office, while two others carry production equipment and heater treaters. Two 440 hp compressors boost 4,000 mcf of low pressure gas per day to salable pressure, and another platform supporting two 660 hp compressors is soon to be built.

A contract has been awarded for the installation of automatic well testing and data transmission equipment which will make the Eugene Island Block 18 field one of Shell's most modern facilities.



POSITIVE DISPLACEMENT METER is measuring element in LACT system installed by Shell. It measures volume, corrects the volume for temperature differences, and prints the resulting volume on 2 run tickets inserted in ticket printer at top of meter. Background instruments measure BS&W content of two feed streams and sales line.

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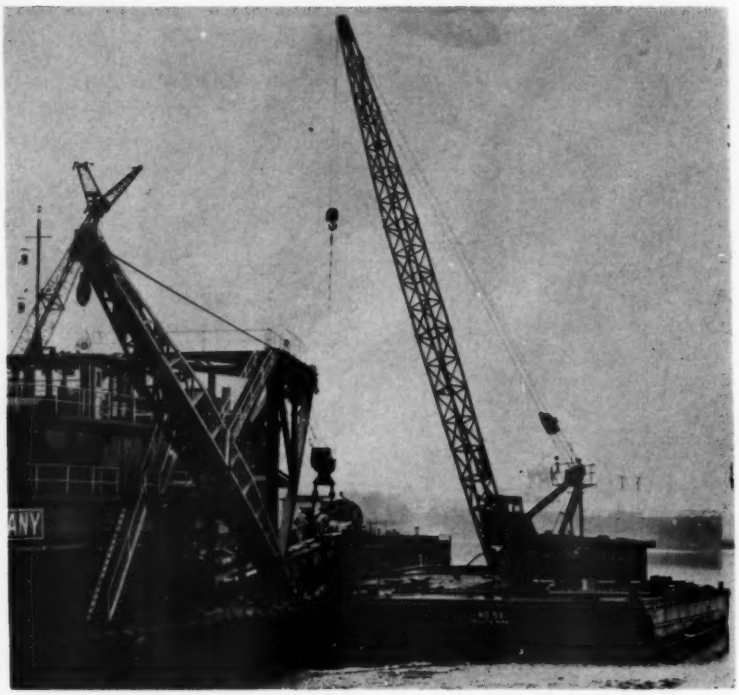

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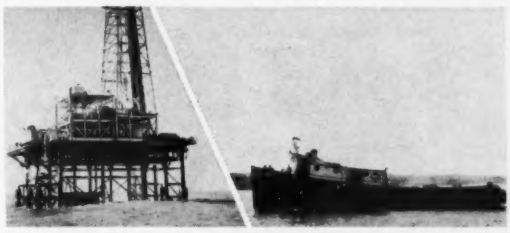

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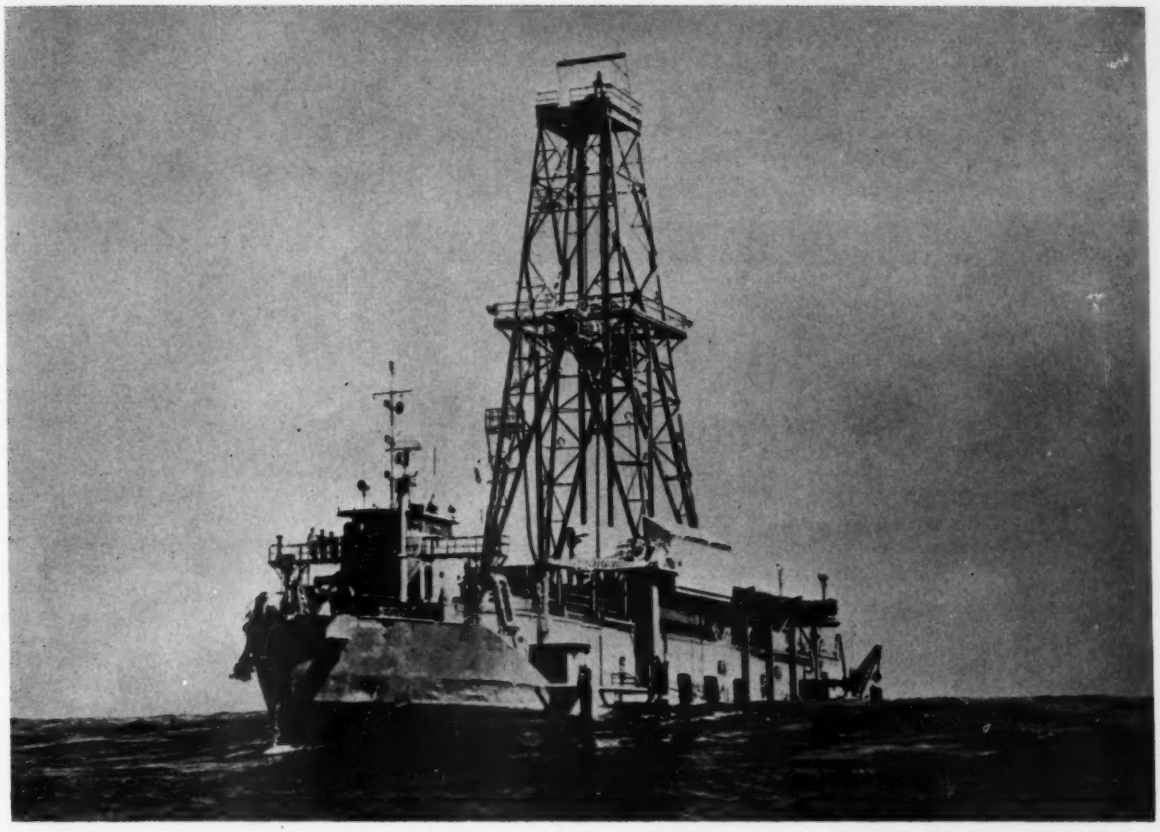


THE FLOATING DRILLING VESSEL "CUSS I," owned and operated by Global Marine Exploration Company of Los Angeles, is back in port after successfully drilling a test hole into the ocean floor in 11,700-ft. of water. Drillsite was in the vicinity of Guadalupe Island, off the west coast of Mexico.

"MOHOLE" PROJECT AID TO OIL INDUSTRY

OCEAN TEST PROVES FEASIBILITY OF DRILLING IN MUCH DEEPER WATER

The drilling barge CUSS I recently drilled in the deepest ocean depths ever achieved, and opened new vistas for exploring the earth's "inner space" and its origin.

At the same time, the pioneering vessel pointed the way toward oil exploration in much deeper water than was heretofore deemed possible.

Working in 11,700-ft. of water off the coast of Baja California, the CUSS I drilled both a 110-ft. and 234-ft. hole into the ocean floor, bringing up the deepest specimens of the earth's crust ever extracted from beneath the ocean.

At deep ocean depths, the earth's crust is believed to be the thinnest and should reveal the most information on the inner earth's composition and history.

It remains to be seen how much in additional mineral resources that rest untapped beneath the ocean may become available to the world in the light of this achievement.

The "Mohole" . . . The unprecedent drilling took place as part of a scientific project called the Mohole, which ultimately aims at probing through the earth's crust and into its mantle. The project in the vicinity of Guadalupe Island, off the western coast of Mexico's Baja California, was designed as a test in deep water of the techniques of drilling from a floating vessel which originally were developed by the oil industry for offshore oil exploration.

The test drilling off Guadalupe was at ocean depths some four times deeper than ever before attained. Earlier this month, as part of the Mohole experiments, the CUSS I had drilled at depths of 3,000-ft. off La Jolla, California. Prior to that, the deepest ocean drilling from a floating vessel had been in about 400-ft. of water.

Drilling contractor . . . The drilling was conducted by Global Marine Exploration Company of Los Angeles, a pioneer in offshore drilling from floating vessels and the owner-operator of the CUSS I. Global performed the drilling and associated engineering tasks under a contract with the National Academy of Sciences and the National Science Foundation, sponsors of the Mohole project.

How it was done . . . In the experiments the only connection between the drilling vessel and the ocean floor was 11,700-ft. of 4½-in. drill pipe, having no conductor pipe nor other lateral support. A diamond bit performed the actual drilling into the earth's core, and salt water served as the only drilling fluid, Robert F. Bauer, president of Global Marine reported.

In drilling off the floating vessel, Bauer explained, the drill pipe was suspended from a 98-ft. derrick through a large centerwell in the

barge. An engine-powered rotary table drove the pipe, as in conventional oilfield drilling.

The CUSS I . . . The unique drilling barge **CUSS I** draws her name from the group of four oil companies, Continental, Union, Shell and Superior, who were responsible for her construction in 1956. When the so-called CUSS Group dissolved in 1958, Global Marine Exploration Company was formed and now operates the drilling barge.

In offshore oil explorations, the **CUSS I** has proved herself an efficient drilling tool, and has an unmatched total of more than 200,000-ft. of drilled hole to her credit.

The 260-ft. 30-ton vessel—a former sea-going Navy barge—was commissioned in late 1956, after nearly two years of engineering design went into her unusual construction. The decision to build a full scale and operational rig like the CUSS came after experiments by the oil group back in 1953 had proven out the technique of offshore drilling from a free-floating vessel.

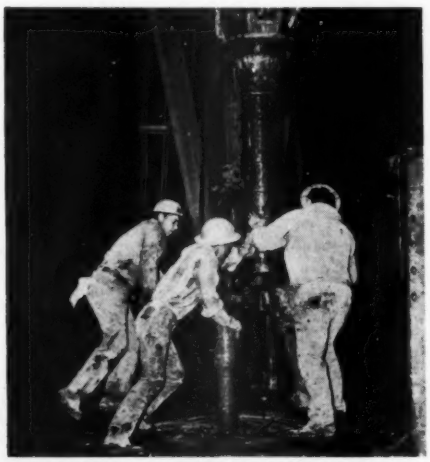
For her work in project Mohole, the **CUSS I** was modified early this year to meet the new requirements of especially deep ocean drilling.

Modifications . . . Among the major modifications are a guide shoe or curved funnel which is installed immediately beneath the drilling rig's rotary table some 10-ft. into the water, and a tapered casing—such as a hollow fishing rod—fastened to the landing base at the ocean's floor. Both these designs aim at properly distributing the bending load in the elongated pipe—which in the case of the Mohole experiment is uncased.

Normally, the **CUSS I** is held in place by anchors during drilling. For the Mohole experiments, however, the barge is maintained in position by four steerable 200-hp outboard motors controlled according to radar and sonar sensing off fixed buoys.

The project Mohole gains its name from that discontinuity between the earth's crust and mantle which is named after its discoverer—Mohorovicic, a Yugoslavian seismologist.

Based on the experiments off Baja, a full scale program for actually penetrating the Moho and probing the earth's core may be forthcoming, scientists hope.



ROUGHNECKS SWING INTO ACTION to add a length of pipe to the drill string aboard CUSS I during recent experimental drilling in deeper ocean depths than was ever before attempted.

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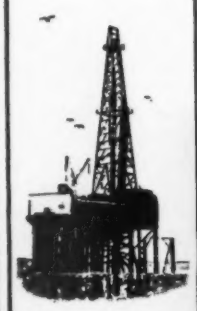
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RECORD STRING of thick-wall alloy tubing was set in this deepest producing well in Texas—the No. 1 J. C. Kelly, discovery well in the Hershey field, Pecos County.

DEEP WELL . . .

RECORD TUBING STRING

The Atlantic Refining Company now holds the depth record for production in Texas with its J. C. Kelly No. 1 discovery well in the Hershey field, Pecos County.

Another record was made when 15,791-ft. of thick wall tubing, the heaviest ever set, went into the well. The alloy tubing string consisted of 371 joints of 4-in. O.D. and 114 joints of 4½-in. O.D., especially manufactured by the Babcox & Wilcox Company, Beaver Falls, Pa., and supplied by Atlas Pipe Inc. of Houston.

Hardy-Griffin Engineering Corporation of Houston finished the tubing with its HG "DDS" Teflon seal box and pin connections, after which the tubing was plastic-lined to no-holiday specifications.

Weight of the tubing string was more than 325,000 lbs.

The well was drilled to a total depth of 19,696-ft., penetrating 1,169-ft. into the Ellenburger formation. Seven-inch casing was set 16,-211-ft. and 5-in. liner was set between 16,121-ft. and 19,694-ft. After tests of the Ellenburger failed to get production, the cased hole was plugged back to 16,820-ft. and completed for gas production in the Devonian-Fusselman-Montoya f o r m a-iont in the interval 15,831-ft. to 16,680-ft.

On test the well produced at the rate of 32,600 mcf daily through 1-in. choke.

Electronic filters . . .

Eliminate Seismic "Singing"

Gulf Oil scientists solve problem of mapping offshore subsurface areas heretofore impossible

In a scientific breakthrough of particular significance to the oil industry, Gulf Oil Corporation has developed a technique which for the first time will permit accurate seismograph studies of certain offshore areas which thus far have resisted all attempts at such subsurface analysis.

Key to the system is a unique new type of electronic filter designed and built by Gulf Research and Development Company, Gulf's research subsidiary.

Accurate seismographic study of offshore areas has proved to be virtually impossible where the ocean floor is either excessively hard or soft. This is caused by the fact that in comparison with their speed through water, seismic shock waves travel much faster in hard rock bottoms and much slower in soft bottoms. This means that when the waves strike such surfaces, the rapid change in their velocity causes much of the wave energy to be bounced back, rather than transmitted on down into the earth's crust to reflect from geological formations which can indicate oil traps.

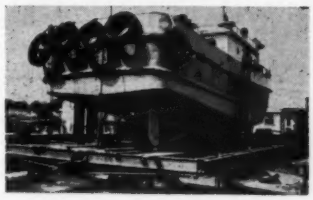
In such instances, the useful "echoes" from subsurface structures following the detonation of a seismic charge are "jammed" by waves which bounce back and forth in the water itself, reflecting alternately from the bottom and the surface. This interference, or "singing," shows up on seismic records as smooth, undulating waves which blot out the sharper reflection traces that normally would delineate the subsurface layers. This can be roughly compared to recurring echoes in a large hall drowning out a speaker's voice.

The problem of removing this singing so that the true reflected waves could be read unimpeded became a top-priority problem for scientists at Gulf's main technical center at Harmarville, Pa.

With the help of the laboratory's IBM 704 computer, Gulf research specialists were able to test out theoretical answers to the problem in record time.

On the basis of the computer tests, complex, unique electronic filters were designed which could effectively suppress the interfering reverberations and allow the desired signals from subsurface layers to be recorded and recognized.

With the singing overcome, Gulf geological crews for the first time were able to map extensive areas of Lake Maracaibo, Venezuela, which had previously defied seismic exploration because of the soft, mucky bottom. Likewise helped were seismic crews operating off the coast of Florida, where an excessively hard ocean floor had hampered exploration efforts. Gulf's oil seekers finally were able to receive good readings on their magnetic tapes. In many marginal areas, moreover, more accurate records were secured through subsequent filtering of seismic tapes at Harmarville.



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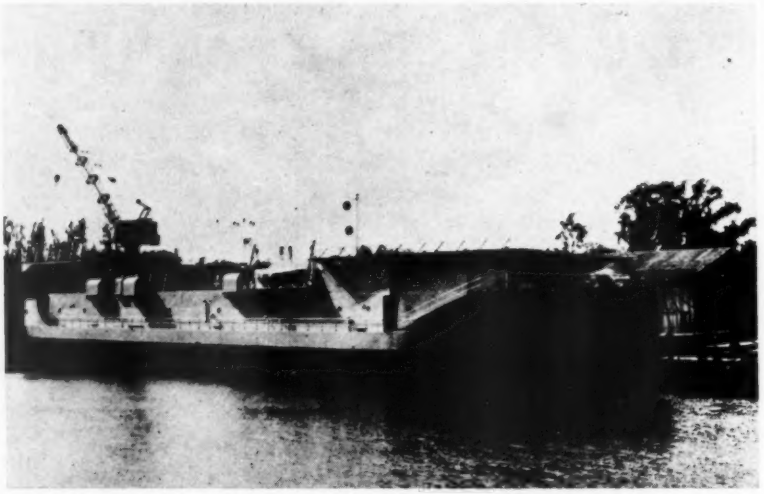


EN ROUTE TO PERSIAN GULF is Aramco Drilling Tender-1, purchased from An-Son Drilling Company of New Orleans. An-Son designed and built the vessel new in 1957 for use in the Gulf of Mexico.

To replace "Queen Mary" . . .

Aramco Purchases Tender

Vessel will support company's portable drilling platform in Safaniya field in the Persian Gulf

Arabian American Oil Company will resume drilling operations in its offshore Safaniya field, in the Persian Gulf, with the aid of a drilling tender purchased on the U. S. Gulf Coast.

The company's original drilling tender, the "Queen Mary," was swamped and sank at Safaniya last Dec. 20 in 45-ft. of water. The vessel has been salvaged, but will undergo only limited repairs and will be used for workovers.

Aramco purchased a modern deep-water tender (see Offshore, Dec. '57, p. 53) from An-Son Drilling Company of Oklahoma City and New Orleans, for $1.35 million. Designed and built by An-Son in 1957, the **Carl B. Anderson** has been renamed the **Aramco Drilling Tender-1** by its new owners. It left New Orleans April 4, bound for the Persian Gulf.

The **ADT-1**, which measures 250-ft. in length by 50-ft. wide, draws 10-ft. of water. The vessel is a fully contained, self-sufficient drilling tender with mud pumps, mud system, storage space for mud, cement, water pipes, and has diesel-electric power and living accommodations for 50 personnel.

California

Richfield Makes Underwater Completion Off Ventura

Richfield Oil Corporation has made an underwater completion on its offshore lease at Rincon, Ventura County.

The well, completed more than 50-ft. below the ocean's surface (*see Offshore, Feb. '61, p. 12*), is California's first. Site of the underwater completion is about .7 mile offshore and just north of the company's filled drilling island on the same lease.

The company used approximately the same equipment and techniques developed by Peruvian Pacific Petroleum Company. Peruvian Pacific, a subsidiary of Cities Service in a joint venture with Richfield, recently completed a well 132-ft. under the Pacific off Peru.

The California underwater completion can be controlled from Richfield's drilling island.

Gabon

First Offshore Well To Be Drilled In The Franc Zone

Mobil International and its French partner, SPAEF, will spud an offshore wildcat in August off Gabon—the first such test to be drilled in the franc zone.

The partners will use a tri-legged drilling barge down under construction in Louisiana. The barge is being built by Offshore International of Baton Rouge, the drilling contractor on the job, and will be towed from the U. S. Gulf Coast to Gabon.

The Offshore Company, parent firm of Offshore International, is the world's largest operator of deep- water drilling barges. A unit similar to the one being constructed for use in Gabon was completed recently and towed to British Honduras, where it is drilling an offshore wildcat.

The Gabon platform is self-elevating, with three 200-ft. legs enabling it to operate in water nearly 150-ft. deep.

Mobil will be operator on the offshore concession.

Iran

ENI Ships First Persian Gulf Crude Oil To Italy

Sirip, the joint Ente Nazionale Idrocarburi-National Iranian Oil Co. venture, has shipped its first Persian Gulf crude to Italy—18,000 tons produced in tests of its first offshore wildcat, long rumored to be a strike.

The well was drilled from a fixed platform some 10 miles off the coast of Iran. A second well, drilled from the same platform, was shut down for a fishing job at last report.

ENI President Enrico Mattei says the first well "can produce 500 metric tons of crude oil a day." He also revealed plans to drill up to 20 more wells in the area. He added that a

EVIDENCE OF FACT!

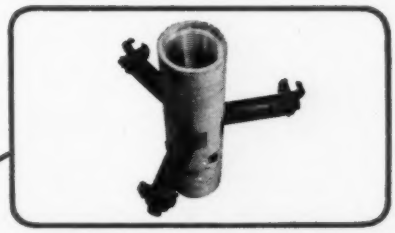
over 20 years of cutting... costs!

Halliburton was the FIRST to offer the hydraulic cutting technique for downhole work, as shown by this reproduction of the March 4, *1940* issue of The Oil Weekly (now World Oil).

Here's *proof* of Halliburton's long experience in the practical application of hydraulic cutting tools. The Acid Jet Gun, first introduced by Halliburton over 20 years ago, was the pioneering tool in this important field. It was the forerunner of today's Halliburton Hydra-Jet.

The Hydra-Jet tool, pictured below, is specifically designed to cut off casing in offshore and inshore wells – quickly, evenly – and right where you want it. Tools are available for cutting any size casing . . . even up to 48" caissons. Costs? Amazingly low! The tool is run on tubing or drill pipe *with the conventional drilling rig and crew* immediately after the well is plugged. Time? Sensibly short! Once the tool is run, CUTTING TIME IS MEASURED IN JUST MINUTES.

After the decision is made to abandon a well, every dollar spent is a dollar *lost!* Use the Halliburton Hydra-Jet . . . and cut *costs* while you're cutting the casing.



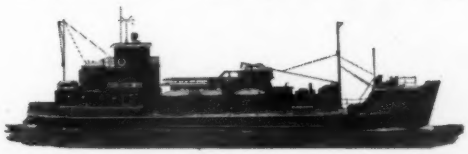
The tri-nozzle Hydra-Jet tool shown above was the type used to cut the actual sample of casing shown below. Note the smooth, even edge cut made by Hydra-Jet. The following Performance Story is typical of many jobs where this tool has been used:

REQUIREMENTS: Cut 10¾" 40.5 lb. per ft. casing approx. 17' below ocean floor.

PROCEDURE: Use tri-nozzle Hydra-Jet tool. Pump rate – 3 bbls. per minute @ 3,100 psi. Sand Ratio – 1.5 lbs. per gallon sea water.

RESULTS: Pipe completely cut in 61½ minutes.

CONTINUE TO LOOK TO HALLIBURTON . . . FOR LEADERSHIP



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14-km pipeline had been constructed to transport the oil to two base ships of 16,000 tons capacity each, anchored at sea.

Bahrganstar No. 1 reportedly reached 6,992-ft., where oil was found in the Asmari limestone.

It was rumored over a year ago that Sirip had a strike at Bahrganstar, but no oil has been shipped until now. Drilling operations on the offshore concession will be greatly stepped up when a new mobile drilling platform, launched recently near Leghorn, is towed to the Persian Gulf from Italy.

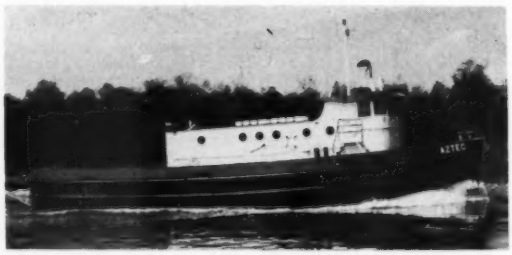
Louisiana

Deep Test Drilling Below The 19,000-Ft. Mark

John W. Mecom's Unit No. 1-S LL&E, Plaquemines Parish, La., may be headed for a new world record depth.

The operator has announced his intention of drilling to 26,000-ft. At last report, the drill was below 19,000-ft. The well may have encountered a good pay sand between 16,000-ft. and 17,000-ft. A log run near 19,000-ft. showed bottomhole pressure to be 275° F.

GM GENERAL MOTORS DIESEL POWER POWER GM GENERAL MOTORS DIESEL POWER



by KENNEDY

TWENTY GRAND TOWING, INC. of Morgan City, La. is another satisfied owner of GM diesels supplied by KENNEDY MARINE ENGINE CO. The M/V AZTEC, above, is one of the latest additions to the Twenty Grand Fleet—the largest fleet of its kind operating in the Gulf of Mexico. This 85-ft. steel production-utility vessel was built at the Bayou Boeuf Yard of J. Ray McDermott & Co. Main engines are two GM diesels. Auxiliary power is provided by another two GM diesels and heavy-duty A.C. generating sets.

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Neutral Zone

Details Of Arabian Oil's Persian Gulf Program

The contract in excess of $70 million awarded to McDermott International by Arabian Oil Company provides for the construction of production, handling and shipping facilities for the latter firm's offshore production from the Neutral Zone of Kuwait-Saudi Arabia in the Persian Gulf.

McDermott International, Inc. is a wholly-owned subsidiary of J. Ray McDermott & Co. of New Orleans.

Facilities to be constructed include four flow stations, central gathering station, gathering lines, a 26-in. diameter submarine crude line to an onshore terminal, flow lines, offshore tanker loading dock and other appurtenances required for the production, handling and transportation of 200,000 bpd of crude oil. Start up of these facilities is scheduled for June, 1962, with completion of construction by September, 1962.

Tokyo-based Arabian Oil Company received the concession in the Persian Gulf in 1957. Ten wells have been drilled on the concession, all completed as producers. No. 10 is rated at 6,300 bpd—which is approximately the same as each of the other nine.

U.S.S.R.

Offshore Discovery Reported In Caspian Opposite Baku

An offshore discovery in the Caspian Sea opposite Baku has been reported. The Soviets have an immense overwater oil-producing installation at Baku, one of the nation's most important oil-producing areas.

A U. S. oil magazine reports that five additional wells will be drilled in the vicinity of the discovery, which is said to be about ⅓ mile offshore from Cheleken Peninsula.

Mexico

Conoco Becomes Pauley Partner

Company acquires half interest in Bay of Campeche holdings in $8 million deal

Continental Oil Company has purchased a half interest in Pauley Pan American Petroleum Company's offshore holdings in the Bay of Campeche, off Mexico.

Conoco paid $8 million to become a partner in the venture, which has a sizeable offshore field to its credit.

The Santa Ana field, just off the mainland, has eight completed wells capable of producing some 10,000 bpd. Five of the wells are dual completions, two are triple completions, and one is a single completion.

Production is in excess of the capacity of the one existing pipeline, which can handle only 5,300 bpd. But a second pipeline, capable of delivering 35,000 bpd, is under construction.

Development plans . . . Initial drilling in the offshore field was done by mobile drilling units, towed down from the U.S. Gulf Coast. But a 12-well permanent platform has been erected, and four wells completed from it. Two more permanent platforms will be added—one a 16-well platform, and the other of that size or larger.

Operator . . . Pauley Pan American Petroleum Company, a subsidiary of Pauley Petroleum, Inc., will continue as the operator under the name of CIMA.

UNDERSEA PIPE

Fifty miles of aluminum pipe, carried to dockside by a 9-truck caravan, was shipped recently from the U. S. to Talara, Peru. Peruvian Pacific Petroleum Company will lay the 2-in. pipe on the floor of the Pacific Ocean to connect offshore wells with onshore tank batteries. Submerged and anchored to the ocen bottom, the lines do not require protection by coating or wrapping.

Cleverley Retires After 40 Years With Cities Service

Retirement of J. A. Cleverley as vice president and manager of production for Cities Service Petroleum Company has brought about several promotions in the company's production division.

C. R. Smith, long-time general superintendent of production, will step up into the production division managership left vacant by Cleverley.

J. P. Straight, who has been serving as one of two assistant general production superintendents, will be the new general superintendent.

J. C. McClure will be the new assistant general superintendent. Don

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Kastner is serving as the other assistant superintendent.

C. J. Russell will succeed McClure as chief petroleum engineer in the production division.

Cleverley retired April 1 with a career of more than 40 years in the Cities Service production division. He joined the company in 1920 as a member of its college graduate training program. His first permanent assignment was as a roustabout. During the intervening years he served as pumper, production engineer, district superintendent, assistant division superintendent and assistant to the general superintendent of production. He was named manager of production in 1952, and elected vice president in 1953. He has served as an officer of Cities Service Production Company and Canada-Cities Service Petroleum Corp.

Adams Advanced, O'Leary New CATC Production Head

R. L. Adams has been promoted to general manager of Continental Oil Company's western region, with headquarters at Los Angeles.

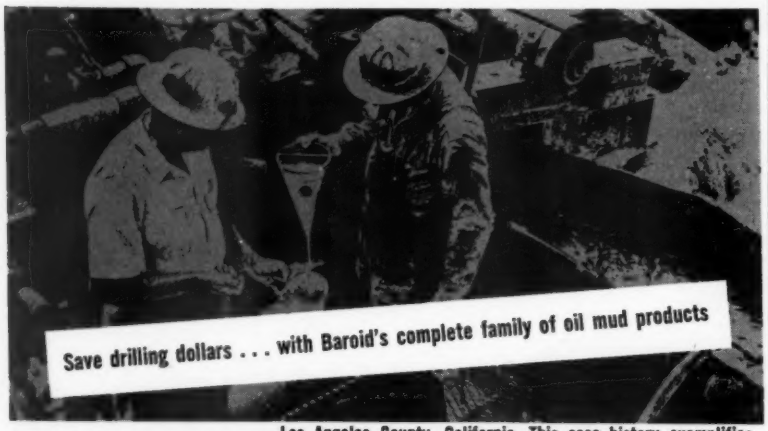
O'Leary

Formerly production manager for Conoco's CATC marine region, he succeeds J. P. Malott, who recently was transferred to Houston and elected a company vice president and general manager of production.

It was announced at the same time that F. T. O'Leary has been promoted from regional superintendent of natural gasoline and gas operations to production manager for the CATC marine region, succeeding Adams.

Adams joined Conoco in 1946 and served in key production positions in New Mexico, West and North Texas, and Oklahoma before his promotion to division production superintendent at Roswell, N.M., in 1955. Production manager of the CATC marine region since 1959, he is a native of Athens, Texas, and received his bachelor's degree in petroleum engineering in 1941 from Texas A. & M.

O'Leary became associated with Conoco in 1951 as a reservoir engineer at Ponca City, Okla., and transferred to Houston three years later as senior reservoir engineer. He became superintendent of natural gasoline and gas operations for the CATC marine region in 1956. Born and raised in Pittsburgh, Pa., he is a graduate of the University of Pittsburgh, where he majored in petroleum engineering.



Baroid Field Report: **Los Angeles County, California. This case history exemplifies the application of one type of a Baroid Oil Mud used to solve this particular problem.**

Baroid Oil Mud solves water-sensitive pay sand problem

A Baroid Oil Mud containing INVERMUL*, PETROTONE** and DURATONE** was recently used successfully to prevent water damage to productive oil sands in the Inglewood Field, Los Angeles County, California.

The water-sensitive formations and high bottom-hole temperatures encountered had previously prevented completing below 7,500 feet without water damage. These difficulties were attributed to formation damage by the filtrate from conventional water muds.

The well was spudded and 16" casing set at 550 feet. An AQUAGEL*-caustic soda-CARBONOX* emulsion mud was used to drill to 3,000 feet—10¾" casting net. The AQUAGEL-CARBONOX mud was treated with TRIMULSO* and used to drill to 7,400 feet. At 7,400 feet the oil-in-water-emulsion mud was displaced with a pre-mixed Baroid Oil Mud containing INVERMUL and DURATONE. No difficulty was encountered during the displacement. Water mud incorporated into the oil mud did not alter its flow properties.

PETROTONE (2 lb/bbl) was used to treat this oil mud to eliminate the possibility of any settling of BAROID* at the high bottom-hole temperature.

DURATONE controlled filtration at 0.0 to 0.5 ml, all oil. This control insured against filtrate damage to formations.

Baroid Oil Muds, product of Baroid research and engineering, saves your drilling dollars and keeps your drilling program on schedule. For more information on the unique properties and flexibility of Baroid Oil Muds write for Product Data Sheets.

*INVERMUL, emulsifier; AQUAGEL, bentonite; BAROID, weight material; CARBONOX, thinner; TRIMULSO, surfactant; are Registered Trademarks of Baroid Division National Lead Company.
**PETROTONE, suspending agent, and DURATONE, filtration stabilizer, are Trademarks of Baroid Division National Lead Company.

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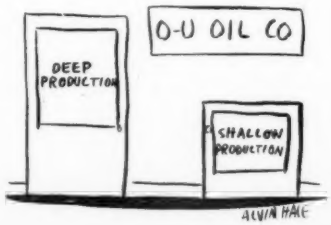

THE AZTEC, 85-ft. steel production-utility vessel, is one of two added recently to Twenty Grand fleet. Vessel was built at the Bayou Boeuf yard of J. Ray McDermott & Co. near Morgan City, La., and is powered by G.M. diesels supplied by Kennedy Marine Engine Company of Biloxi, Miss.

Two New Vessels For Twenty Grand

Heavy-duty supply vessel, production-utility vessel are added to "largest fleet of its kind operating in the Gulf"

Two new offshore supply vessels, the M/V **Jackson** and the M/V **Aztec,** were recently placed in service by Twenty Grand Towing, Inc. of Morgan City, La.

These new additions to the largest fleet of its kind operating in the Gulf of Mexico were referred to by Twenty Grand President Peter V. Guarisco as "evidence of the continued progress of the Twenty Grand fleet in the development of offshore marine transportation."

The **Jackson,** a steel-hulled heavy-duty supply vessel, was constructed by Burton Shipbuilding of Port Arthur, Texas. Main propulsion engines are matched Waukesha diesels, with auxiliary power provided by a pair of G.M. diesels and Delco A.C. generators. Guarisco describes the **Jackson** as "a real 'work horse' whose design and performance embody all the ingredients for fast, efficient, dependable marine oilfield transportation."

The **Aztec,** an 85-ft. steel production-utility vessel, was built at the Bayou Boeuf yard of J. Ray McDermott & Co. Main engines are two G.M. diesels supplied by Kennedy Marine Engine Company of Biloxi, Miss., and auxiliary power is provided by another two G.M. diesels and heavy-duty A.C. generating sets.

"The **Aztec** was designed specifically to meet the transportation problems of oil and gas production crews in rough water areas of the Gulf," Guarisco says. He describes the design specifications of the **Aztec** as having been inspired by passenger safety and comfort.

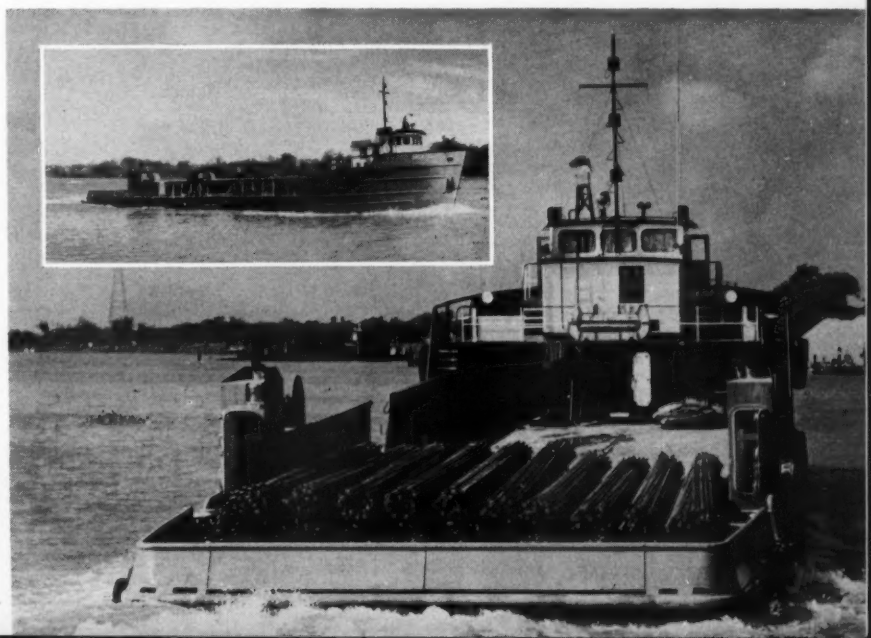

PHOTO AT RIGHT shows spacious deck of the M/V Jackson (also shown inset), one of two new vessels recently placed in service by Twenty Grand Towing, Inc. of Morgan City.

THIS 21-FT. ALUMINUM CRUISER is literally jet-propelled, and is the forerunner of much bigger boats utilizing the turbo-jet principle. Sewart Seacraft of Berwick, La. plans similar power installations in crew boats up to 60-ft. in length, now that the smaller model has been successfully tested.

Turbo-Jet Propelled Boat By Sewart

Sleek 21-footer can navigate in water as shallow as 6-in. deep, maneuver "like lightning," race along at speeds of nearly 40 mph

Sewart Seacraft, one of the nation's leading crew boat and work boat manufacturers, has successfully developed and is now marketing turbo-jet propelled craft.

The Berwick, La. firm made a soaring entry into the jet field last fall with a trim 21-ft. aluminum cruiser which reached speeds of nearly 40 mph—a world-wide first in this particular field.

Since that time several major oil companies have placed orders with Sewart for this type of craft, while one company has begun conversion of its fleet of crew boats to turbo-jet.

Ken Hidalgo, general manager of Seacraft and designer of the company's line of crew boats and work boats, states that the firm intends to apply the turbo-jet installation to crew boats up to 60-ft. in length. This decision was reached after Hidalgo toured Indiana Gear Works at Indianapolis, Ind., where he made a thorough study of component parts of the facility and discussed the manufacture of larger units.

Hidalgo said the 7½-in. pump, used on the 21-ft. model, is being projected to larger sizes. A 10-in. unit will absorb up to 190 hp, for boats in the 40-ft. class, and 12-in. units will absorb up to 225 hp to accommodate boats 45-ft. to 60-ft. in length.

Features . . . An amazing feature of the turbo-jet is the fact that it can navigate in waters as shallow as 6-in. in depth. With lightning-like maneuverability, it can turn "end to end."

Since there are no propellers, expensive shafts or extensive steering equipment involved in the operation, the installation and equipment are far cheaper and easier to assemble. There is absolutely nothing hanging on the bottom of the boat to retard its action in shallow water, and the simplicity of the unit means fewer parts and therefore less maintenance and less replacements.

Power unit . . . The motor, turbo mechanism and fuel tanks are restricted to a small area in the stern of the boat, affording more space which may be utilized by passengers, equipment and freight. It is interesting to note that although the vessel may be navigating at full speed, it does not constitute a noisy operation, and passengers may converse with one another with ease.

How it works . . . Hidalgo explained the functions of the turbo-jet by saying that water, sucked through an opening in the bottom of the hull by means of a three-stage pump, is converted into thrust by being shot out through a cube-shaped unit attached to the pump opening at the stern. This causes the boat to move forward. The gate opening and direction of flow is controlled by a shaft leading to the steering wheel.

Roland Hidalgo, plant superintendent and brother of Ken, successfully developed an efficient steering system and has made the unit adaptable to practically any type of marine engine.

Sewart Seacraft . . . Sewart officials are optimistic about the rapid development of their new product. The Berwick, La. firm has manufactured nearly 1200 boats representing over 40 different models.

SERVICE PERSONALITIES . .

Cantex To Specialize In Loss Circulation Material

Formation of Cantex Corporation, a wholly-owned subsidiary of Barnwell Offshore, Inc. of Shreveport, La. has been announced. Charles H. (Chuck) Dresser, Jr. of Houston, formerly with Milwhite Mud Sales Company, has been named executive vice president. R. J. Robbins, vice president and general manager of Barnwell Offshore, Inc. is president, and R. S. Barnwell, Jr. is chairman of the board.

Dresser

The Cantex Corporation, with offices at 820 Texas National Bank Building in Houston will specialize in a loss circulation material to be used in mud systems for the oil industry, with a feature product known as Pheno-Seal.

Dresser attended the Universities of Oklahoma and Arizona, and is a member of Sigma Nu.

Leroy (Lee) Bidwell Joins Southwest Industries, Inc.

Leroy (Lee) Bidwell, Jr. has joined Southwest Industries, Inc. of Houston as manager and senior sales engineer of the firm's New Orleans, La. branch office, it has been announced by E. C. Broun, vice president and director of sales.

Bidwell brings an extensive background in the petroleum engineering field to his new position, including associations with Diversa, Inc. of New Orleans, where he served as production superintendent, and with the Sohio Petroleum Co., where he worked as an engineer on projects of waterflood, evaluation, production, drilling and construction.

A graduate of Texas College of Arts and Industries, Bidwell holds a B.S. degree in petroleum and natural gas engineering. He is a member of AIME, Texas Society of Professional Engineers and the National Society of Professional Engineers.

Executive Committee Of SEG Nominates Brewer

The executive committee of the society of Exploration Geophysicists has announced the nomination of Richard Brewer for president of the world wide organization.

A former resident of San Antonio, Brewer was associated with the Atlantic Refining Company as district geophysicist. His career in geophysics began with Shell Oil Company, and he was formerly vice president of Continental Geophysical Company of Ft. Worth.

Presently, Brewer is a partner in the geophysical consulting firm of Reed and Brewer, and resides in Houston.

LARKIN, WILLIAMS TAKE P.E.S.A. REINS—W. H. Larkin, right, was elected president of the Petroleum Equipment Suppliers Association at the recent annual meeting in White Sulphur Springs, West Virginia. Larkin is president and general manager of the Larkin Packer Division of the Koehring Co., Waxahachie, Texas. W. J. McWilliams, left, president of the Republic Supply Co., Oklahoma City, was elected vice president of P.E.S.A.

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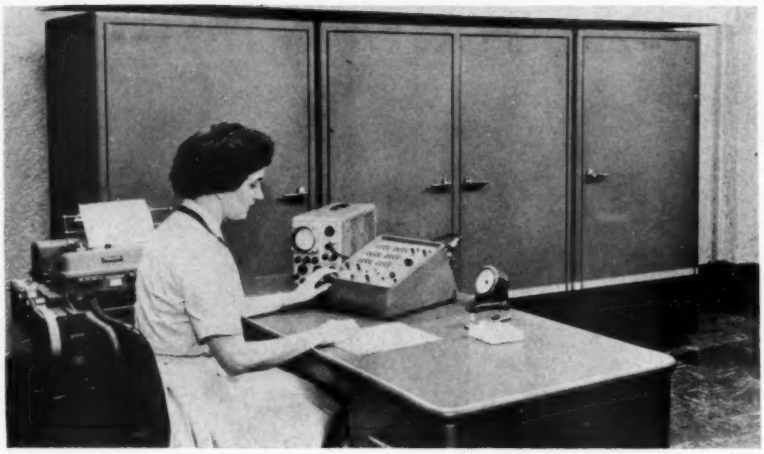


ALWAC III COMPUTER used by Dowell in figuring fracturing guide computations.

Dowell announces . . .

Data Computer Service

Program will speed fracturing, acidizing information to customers in mere minutes

Dowell Division of The Dow Chemical Company has initiated an electronic data computer service program to benefit users of the company's fracture and acidizing stimulation process.

Well and pool information relayed from Dowell service engineers to the computer center in Tulsa will permit computations to be made and returned to the service engineer and customer in a matter of minutes. Such analyses would normally require from eight to twelve hours using a slide rule or deck mechanical calculators.

This faster means of communication will furnish the customer with a wide range of information on such subjects as:

1) Payout in days.
2) Cost of the service job in dollars.
3) Hydraulic horsepower required to do the job.
4) Surface treating pressures.
5) Increase expected from the job.
6) Area created for any particular job.
7) Pounds of propping agent required for the job.

From these data the customer may evaluate various economic factors for a given area, such as productivity versus job cost, payout versus fracture radius, productivity increase versus payout, area versus cost, and area versus productivity increase.

The required information from the service engineer on the job can be relayed to the nearest Dowell station for submission by teletype to the computer center in Tulsa. The computations will be returned by teletype to the Dowell district office and then to the service engineer to handle direct with the customer.

This new service is now available to all Dowell stations in the Continental United States and Canada.

Geosonic Corporation Result Of Merger, Recapitalization

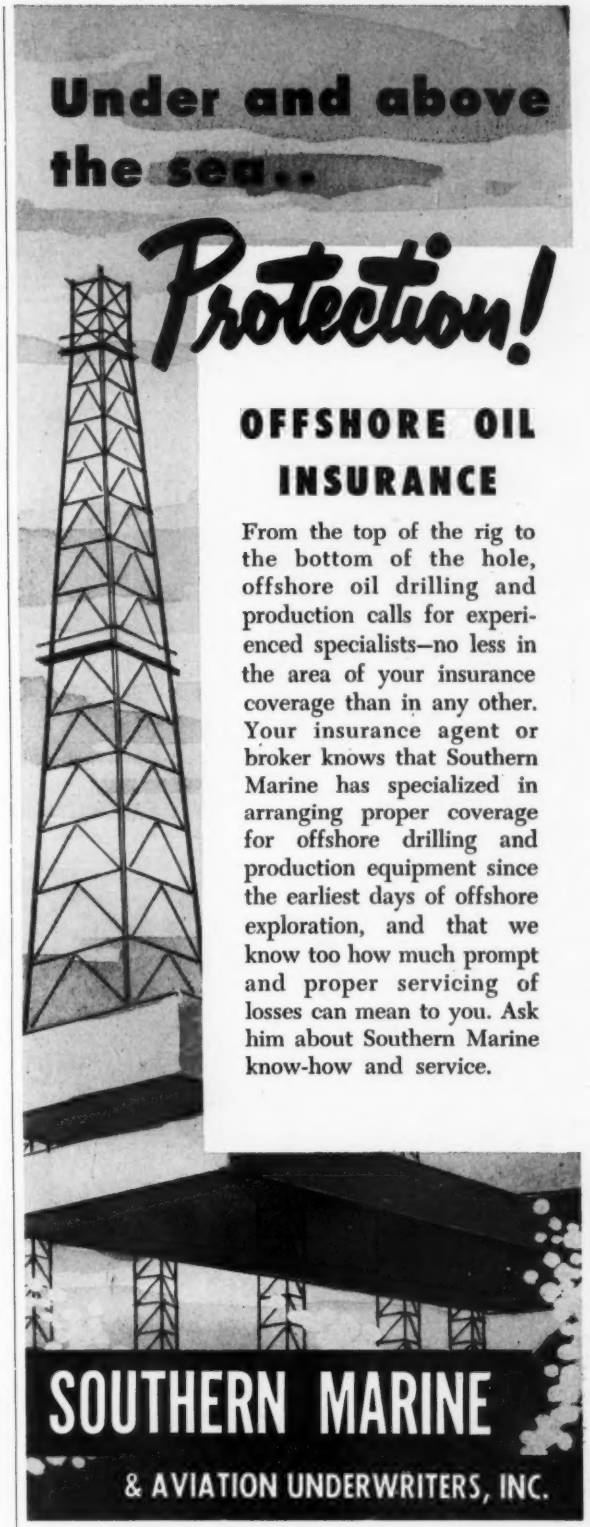
Geosonic Corporation is the new corporate name of Research Explorations, Inc. after its recapitalization resulting from a merger with Exploration Associates, Trinton Drilling Company, Rex Drilling Company and Electronic Systems.

Geosonic, established in 1945 by J. F. Freel, president, and Robert B. Briggs, vice president, will have four operating divisions—geophysical exploration, rotary drilling, applied research, and electronic systems manufacturing. Headquarters for all divisions will be maintained at the company's plant and laboratory located at 5134 Westheimer Road, Houston, Texas.

Mobile Units, Tenders, And Self-Contained Platforms

Mobile Units

OWNER	NAME	WATER DEPTH	PRESENT STATUS
Barge Facilities, Inc. Twin-hull submersible 217' x 100'	S-66	100'	Drilling for Calco, Noble Drilling Co., Bay Marchand, La.
Barnwell Offshore, Inc. Self-elevating 176' x 176' x 152' with three 175' legs	"Mister Cap"	to 125'	Drilling for CATC, Block 144, Ship Shoal Area, Well No. 1
Barnwell Offshore, Inc.	Rig No. 2		Moved onshore to workover land wells temporarily.
Blue Water Drilling Corp. Submersible	Rig No. 1	60'	Drilling for Shell Oil Co., Block 139, Ship Shoal Area
The California Company Submersible 11' x 90' x 156' with four 3' x 10' x 35' pontoons	S-45	25'	Ship Shoal Area, 107
The California Company Submersible 12' x 90' x 190', with four 4' x 24' x 50' pontoons	S-55	45'	Bay Marchand, La., Noble Drilling Co.
Continental Marine Exploration Co. Submersible 230' x 99' with 54' between fixed hulls	"M & H Drilling Platform No. 12"	to 30'	Now being dismantled to be retired
Coral Drilling Company Submersible 180' x 151' x 84' with four pontoons	"Mr. Arthur"	to 70'	Drilling for Tennessee Gas & Oil Co., Block 17, West Cameron Area
Deepwater Exploration Co. Self-elevating overall 121' x 118'	"Deepwater No. 2"		Sold for scrap
Delta Marine Drilling Co. Submersible	"Chris Zeppa"	to 35'	Stacked
Dixilyn Corp. Self-elevating 194' x 152' overall. Three 175' legs	"Julie Ann"	to 105'	Drilling for Shell Oil Co., Block 328, Galveston Area
Global Marine Exploration Co. Floating vessel	Cuss I		Drilling off Guadalupe Island
Global Marine Exploration Co. Floating vessel	SM-1		Drilling - Construction Project - U.S. Navy
Global Marine Exploration Co. Floating vessel	Submarex		Idle—Lake Michigan
Gulf Marine Drilling, Inc. Submersible	Rig No. 1	35'	Drilling for Gulf Oil Corp., Block 24, West Delta, Well No. 1
Hyperion Constructors Self-elevating	"George F. Ferris"	200'	Los Angeles, Calif., Stacked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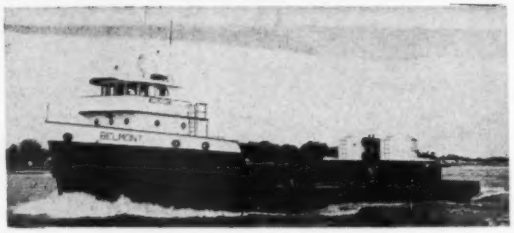

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OWNER	NAME	WATER DEPTH	PRESENT STATUS
Kerr-McGee Oil Ind., Inc. Submersible 13' x 54' x 160' with two 13' x 14' x 110' pontoons	Rig 40	to 22'	Drilling for Kerr-McGee, et al, Block 28, Ship Shoal Area
Kerr-McGee Oil Ind., Inc. Submersible 131½' x 72' x 140' with two 131½' x 131½' x 140' pontoons	Rig 44	to 40'	In shipyard installing new mud equipment
Kerr-McGee Oil Ind., Inc. Submersible 142' x 69' x 13'6", with two 10' x 11' x 146' pontoons	Rig 45		Drilling for Superior Oil Co., Block 71, Vermilion Area
Kerr-McGee Oil Ind., Inc. Submersible	Rig 46	to 70'	Drilling for Forest Oil Corp., Block 129 Vermilion Area
Kerr-McGee Oil Ind., Inc. Submersible	Rig 47	to 78'	Corp., Block 129, Vermilion Drilling for Gulf Oil Corp., Block 21, South Tamballer
Long Point Gas & Oil Ltd.	Translake No. 1	35'	Drilling for Self, Lake Erie
Long Point Gas & Oil Ltd.	Translake No. 2	48'	Drilling for Self, Lake Erie
Louisiana-Delta Offshore Corp. Submersible 180' x 151' x 12'	Drill Barge Louisiana	to 65'	Drilling for Humble Oil Co., Grand Isle Area
Louisiana-Delta Offshore Corp. Submersible 156' x 90'	Drill Barge Delta	to 25'	Main Pass Area
Mobil Oil Co.	Rig 52	24'	Sold
Midcon Oil & Gas Co., Ltd. Cable tool	Midcon No. 1	90'	Drilling for self, Lake Erie
Movible Offshore Co. Submersible 201' x 211' x 110'	"Movible No. 2"	to 80'	Drilling for Shell Oil Co. Block 27, South Pass Area
Movible Offshore Co. Submersible 200' x 146' x 67'	"Movible No. 3"	to 45'	Drilling for Shell Oil Co., Block 27, South Pass Area
Movible Offshore Co. Self-Propelled Drilling Tender	Rig No. 4		Drilling for Mobil Oil Co., Block 131, Vermilion Area
N. V. Nederlandse Ardolie	"Triton"		Outfitting in Cardiff, Wales for location in North Sea
Ocean Drilling & Exploration Company Submersible 200' x 300' x 98'	"El Dorado"	to 70'	Drilling for Odeco et al, Block 129, Eugene Island Area
Ocean Drilling & Exploration Company Submersible 132' x 220' x 58'	"Mr. Charlie"	40'	Drilling for Odeco, et al, Block 93, Ship Shoal Area
Ocean Drilling & Exploration Company Submersible 120' x 180' x 49'	"John Hayward"	30'	Drilling for Odeco, et al, Block 89, Eugene Island Area

OWNER	NAME	WATER DEPTH	PRESENT STATUS
Ocean Drilling & Exploration Company Submersible 200' x 300' x 93'	"Margaret"	to 60'	Drilling for Shell Oil Co., Block 30, West Delta Area
Ocean Drilling & Exploration Company Submersible 120' x 180' x 50'	"St. Louis"	30'	Drilling for Shell Oil Co., Block 100, Eugene Island Area
The Offshore Company Self-elevating 131½' x 117' x 220' with fourteen 6' dia. caissons	Mobile Unit No. 52	100'	Drilling for Humble Oil & Refining Co., Block 54, South Timbalier Area
The Offshore Company Submersible 12' x 74' x 200' with four 6' dia. caissons	Mobile Unit No. 53	35'	Drilling for Phillips Petroleum Co., Block 108, Eugene Island Area
The Offshore Company Self-elevating 200' x 104' x 15' with eight 12' dia. towers	Mobile Unit No. 54	100'	Drilling for Phillips Petroleum Co., Block 115, Vermilion Area.
The Offshore Company Self-elevating 200' x 104' x 15' with eight 12' dia. towers	Mobile Unit No. 55	100'	Drilling for Paria Operations, Gulf of Paria, Venezuela.
The Offshore Company Self-elevating 200' x 104' x 15' with eight 12' dia. towers	Mobile Unit No. 56	100'	Leased to Pan-American International Persian Gulf
The Offshore Company Self-elevating 188' x 106' x 13' with four 10' dia. caissons	Mobile Unit No. 57	80'	Leased to Texaco-Trinidad Gulf of Paria
The Offshore Company Self-elevating 97½' x 80' x 12' with three 6' dia. caissons	Mobile Unit No. 58	100'	Drilling for Phillips Petroleum Co. in Caribbean off Coast of Belize.
Offshore International S.A. Self-elevating 200' x 104' with 8-12' dia. towers	Offshore No. 56	126'	Drilling for Pan American International in Persian Gulf.
Penrod Drilling Company Submersible 196' x 108'	Rig 50	35'	Drilling for Hunt Oil Co. Offshore Lafouche Parish
Penrod Drilling Company Submersible 150' x 190'	Rig 51	to 40'	Drilling for Calco, Bay Marchand Area
Penrod Drilling Company Submersible 198' x 174'	Rig 52	100'	Drilling for Pan American Petroleum Corp., Block 389, Offshore Texas
Place Gas & Oil Co., Ltd.	Barge 2		Drilling for Self, Lake Erie
Place Gas & Oil Co., Ltd.	Barge 3		Drilling for Self, Lake Erie
Reading & Bates Offshore Drilling Company Self-elevating	"C. E. Thornton"	to 110'	Drilling for Japanese Arabian Oil Co. in Persian Gulf
Reading & Bates Exploration Company Self-elevating	"Mr. Louie"	To 120'	Drilling for Pure Oil Co., Block 209, Ship Shoal Area
Rimrock Tidelands, Inc. Submersible	"Rimtide"	35'	Drilling for Gulf Oil Corp. Lastare "PP" Lse Well No. 3, Block 27, West Delta Area
Sea Drilling Corp. Submersible	"Seadrill 2"	30'	Block 5 West Cameron Area
Sea Drilling Corp. Submersible	"Seadrill 3"	30'	Block 26, West Delta Area
The Shell Co. of Qatar, Ltd.	Seashell	100'	Drilling for Shell off Qatar

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OWNER	NAME	WATER DEPTH	PRESENT STATUS
Southeastern Drilling Corp. Submersible 11′ x 90′ x 156′ with four pontoons	Southeastern-45		Drilling for the California Co., Ship Shoal Block 107
Standard Oil Co. of Calif.	Western Explorer	200′	California, stacked
Tidelands Drilling Co. Self-elevating Deck 258′ x 104′, pad 200′ x 180′ with four 10′ dia. columns	"Mr. Gus II"	150′	Drilling for Texaco, Inc., in South Pass Area, Block 37
Union Producing Co. Submersible 160′ x 190′	Barge A	to 70′	Drilling in Block 186, Ship Shoal Area
Zapata Off-Shore Company Self-elevating. 194′ x 152′ overall. Three 145′ legs	"Vinegaroon"	to 105′	Drilling off Galveston, Block 426
Zapata Off-Shore Company Self-elevating. 20′ x 80′ x 140′, with three 152′ triangular legs	"Scorpion"	80′	Drilling in Block 860, Mustang Island Area
Zapata Off-Shore Co. Floating drill barge	"Nola 1"		Drilling off Campeche, Mexico
Zapata Off-Shore Co. Floating drill barge	"Nola 3"		Drilling off Key West, Florida

Drilling Tenders

An-Son Offshore Drilling Co.	"Carl B. Anderson"		Sold to Aramco. Preparing for shipment to Persian Gulf
The California Company Converted LST, 328′ x 50′	S-21	25′	Bay Marchand, Louisiana, Noble Drilling Co.
The California Company Converted LST, 328′ x 50′	S-22	49′	Bay Marchand, Louisiana, Loffland Bros.
The California Company Converted LST, 328′ x 50′	S-23		Mothballed
The California Company LST, 328′ x 50′	S-24	46′	Bay Marchand, Louisiana, Noble Drilling Co.
The California Company LST, 328′ x 50′	S-25	48′	Bay Marchand, Louisiana, Loffland Bros
The California Company LST, 328′ x 50′	S-26	40′	Noble Drilling Co., Bay Marchand, La.
CATC Group New tender, 260′ x 54′	"J. C. Craig"	86′	Grand Isle, Block 47
CATC Group New tender, 260′ x 54′	"Carle Sharp"	50′	East Cameron, Block 48
CATC Group New tender, 260′ x 54′	"Ernie Miller"	145′	West Delta, Block 71
CATC Group New tender, 260′ x 54′	"Jack Cleverley"	94′	Eugene Island, Block 208
Deepwater Exploration Co. Converted LST, 328′ x 50′	"Deepwater No. 1"		In shipyard for annual drydocking, overhaul and refurbishing
Delta Marine Drilling Co. Converted LST, 326′ x 50′	"Joseph Zeppa"		Grand Isle Area, Block No. 16, Humble Oil & Refining Co.
Gulf Oil Corporation New tender	"Dolphin"		Completely placed in moth ball fleet at Orange, Tex., engines pickled, and rig stacked

Gulf Oil Corporation Converted LST, 328' x 50'	"Eagle"	Rig stacked at Morgan City, Louisiana
Gulf Oil Corporation New tender, 272' x 60'	"Pelican"	Block 132, S. Timbalier area, self
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-1	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-2	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-3	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-4	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-5	At Orange, Texas for storage
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-6	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-7	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-8	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-9	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-10	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-11	Standing by
Humble Oil & Refining Co. Converted LST, 328' x 50'	ST-12	"Q" Platform in West Delta, Block 30 field
Kerr-McGee Oil Ind. Inc. New Tender, 250' x 50'	"Kermac II" Rig 43	Idle
Kerr-McGee Oil Ind. Inc. New Tender, 250' x 50'	"Kermac III" Rig 48	Drilling for Gulf Oil Corp., Block 169, Ship Shoal
Kerr-McGee Oil Ind., Inc. Converted YF, 260' x 48'	"Frank Phillips" Rig 39	Idle
Magnolia Petroleum Co. Converted YF	"Gulf Coast Barge No. 2"	Out of Service
MCN Group Converted YF	MDT-1	Drilling in Block 119, Eugene Island Area, Well P-2 for self
MCN Group Converted YF	MDT-2	Out of Service
MCN Group Converted YF	MDT-3	Out of Service

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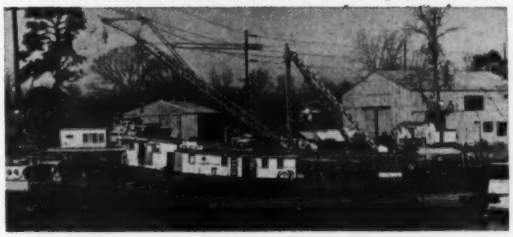

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OWNER	NAME	WATER DEPTH	PRESENT STATUS
MCN Group Converted YF	MDT-4		Out of Service
MCN Group Converted YF	MDT-7		Out of service
Pan American International Oil Company	Panintoil 1	143'	Drilling for self in Persian Gulf
Reading & Bates Offshore Drilling Company	"J. W. Bates"		Drilling in Persian Gulf for Japanese Arabian Oil Co.
Reading & Bates Offshore Drilling Company	"George M. Reading"		Drilling for Gulf Oil Corp., Block 48, South Marsh Island Area
Reading & Bates Exploration Drilling Company	"G. L. Temple"		Drilling for Tennessee Gas & Oil, Block 180A, West Cameron Area
Reading & Bates Offshore Drilling Corp.	"J. W. Nickle"		Drilling for Tennessee Gas & Oil Co., Block 180 A, West Cameron Area
Southeastern Drilling Corp. Converted YF	Rig 12 Barge 9		Persian Gulf for the Arabian Oil Co., Ltd.

Self-Contained Platforms

COMPANY	DESCRIPTION	YEAR BUILT	LOCATION	WATER DEPTH
CATC			Grand Isle, Block 48, Loffland Bros., Rig 46	
Freeport Sulphur Co.			Block 9, Grand Isle, Self	45'
Gulf Marine Drilling, Inc. Rig #2			Bayou Boeuf, awaiting location	
Gulf Oil Corporation	40' x 100'	1957	Rig Stacked at Morgan City, La.	
Humble Oil & Refg. Co. Rig #50	78' x 200'	1956	Block 16 Field, "L" Platform, Grand Isle Area	50'
Humble Oil & Refg. Co. Rig #54		1958	"O" Platform, West Delta Block 30 field	
Humble Oil & Refg. Co. Rig #55			"P" Platform, Grand Isle Block 16 field	
J. Ray McDermott			Block 33 West Cameron Area, Kerr McGee Oil Industries, Inc.	
Phillips Petroleum Co.	88'9" x 140'	1956	Block 191, Eugene Island Area, platform inactive	81'
The Pure Oil Co. Converted LST	328' x 50'	1958	Orange, Texas	
The Superior Oil Co.	96' x 22'		Block 168, West Cameron Area	

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WHAT'S THE OUTLOOK... IN THE GOLDEN GULF

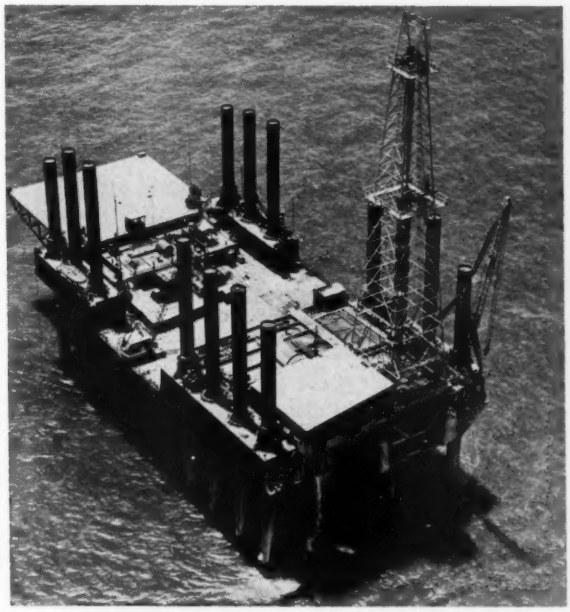
One Year Later?

LAST JUNE, OFFSHORE Magazine published a comprehensive opinion survey relating to the outlook for the offshore industry in the Louisiana-Texas "Golden Gulf" region. This report comprised an objective presentation of the views of leading executives from among prominent oil company, drilling contractor and supply service and company personnel.

ITS PURPOSE WAS

To gauge the potential effect on the industry of record-shattering lease sales which occurred from February, 1959, through February, 1960, and which totaled approximately $423 *million.*

This special report met with an enthusiastic reception among OFFSHORE readers because it provided authoritative answers to many questions relating to present and potential offshore activity and consequent need and demand for equipment and other supplies and services.



THUS, in its June, 1961, issue, OFFSHORE Magazine will repeat this feature. It will up-date the forecasts of the same and many other experts in the field. Again, it will provide a vital tool for projected action to the countless thousands with a stake in this dynamic and growing industry.

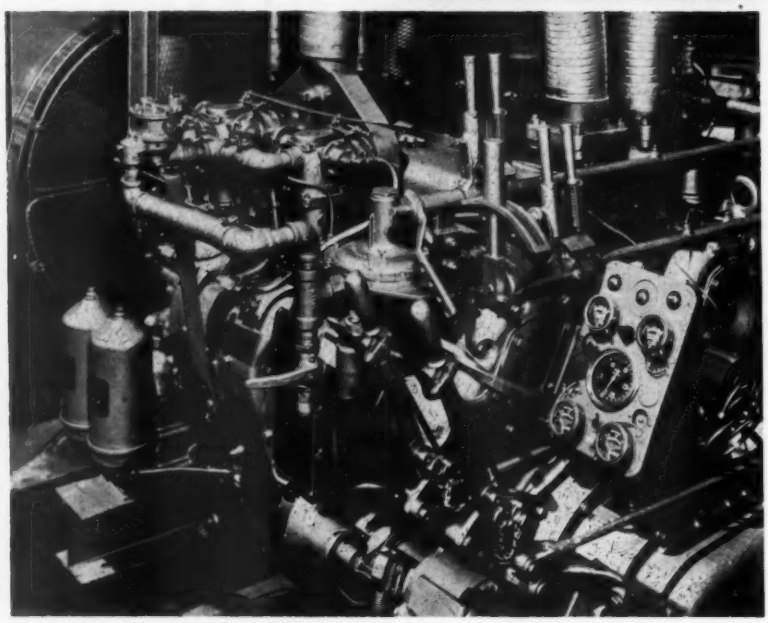
SO, WATCH FOR IT . . .the June, 1961, issue of OFFSHORE Magazine and the "Golden Gulf" offshore forecast.

And . . . if you are a supplier of goods or services to this great industry, why not plan now to advertise in this special issue which will be read with exceptional interest, enjoy greater than usual "pass-along" readership, and be retained as an important asset in the reference libraries of oil, supply, service and contractor companies.

For information on rates, deadlines and copy requirements write, wire or phone (collect)

Offshore

P. O. Box 977 Conroe, Texas Phone: PLeasant 6-2427



MODEL 12103 GM TWIN DIESEL engine with spark ignition kit installed.

Stewart & Stevenson offers . . .

Spark Ignition Conversions For GM Series 71 Diesel Engines

For many years, Stewart & Stevenson have recognized the desirability of a quick change-over from full diesel fuel oil operation to straight natural gas, spark ignited operation on GM Series 71 engines.

After more than three years of research and tests, the company now offers a complete line of spark ignited GM Series 71 engines varying from 40 to over 1400 hp. In addition, conversion kits for existing Series 71 GM diesels are also available at reasonably low cost.

The Stewart & Stevenson conversion kits are made up with relatively few parts. For example, to convert a model 6-71 GM diesel over to spark ignited natural gas operation, the kit would consist of the following major parts:

1) Exchange cylinder head complete with spark plugs and adaptors.

2) Natural gas carburetor with attaching adaptor for installation on engine blower.

3) A special valve assembly for partial automatic fuel to air ratio balance and adjustment.

4) Carburetor to air cleaner adaptor.

5) Magneto or distributor ignition set with wires.

6) Necessary linkage from governor to carburetor and throttle control.

7) Single, back fire arrestor.

Time required to install the equipment on a Model 6-71 diesel is approximately four to five hours.

There are many advantages resulting from Stewart & Stevenson conversion for GM diesels. Among the most significant is the advantage of being able to use the same engine for operation on either straight natural gas or as a full diesel, whichever is the most economical. For more information write **Stewart & Stevenson Services, Inc., 4516 Harrisburg Blvd., Houston 11, Texas.**

Sludge pump

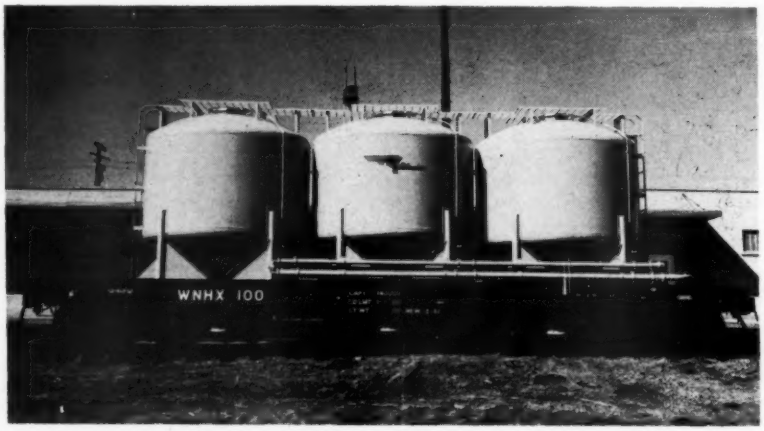
Handles Liquids Containing Up To 15 Percent Solids

A lightweight scavenger pump has been designed to handle liquid containing up to 15 percent solids.

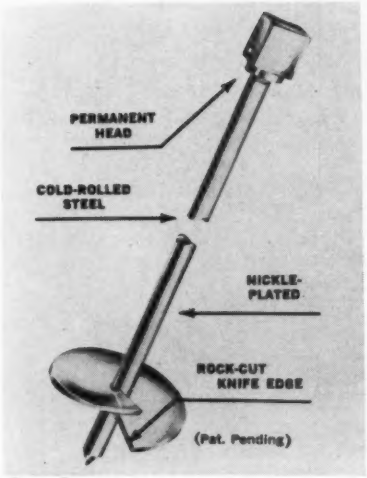
Operating on the ejector principle, the pump handles rock drill cuttings, sand or other solids without causing rapid wear of expensive internal parts. And since there are no diaphragms, stuffing boxes, rotors, impellers and pistons to maintain, it is practically trouble-free.

Air passing through the venturi sucks liquid into the pump. When the pump is full, air pressure forces the liquid out. The cycle is repeated automatically.

Designed to be used with or without a suction hose, the pump operates on a 85 cfm compressor. It requires no priming. For more information about the cp-71 sludge pump, write **Chicago Pneumatic, 6 E. 44th, New York 17, N.Y.**



PNEUMATIC RAILROAD CAR for hauling and transferring powdered, granular and most pelletized dry materials is being introduced by Halliburton Company of Duncan, Okla. Car has a payload of 152,000 lbs., can be unloaded directly to storage by one man in 30 min. The three tear-drop tanks are self-cleaning as each load is moved, substantially cutting waste material and contamination. The car unloads materials anywhere a pipe or hose can be routed.



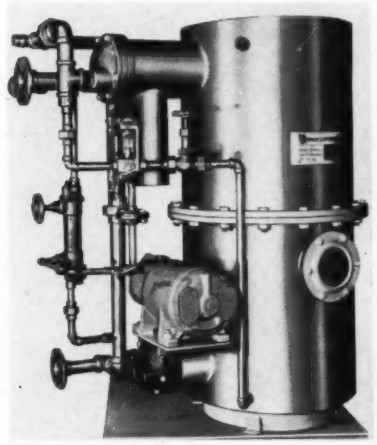
Anchor

Designed To Solve Pipe Line Hold-Down Problems

A new screw-type, corrosion-resistant anchor has been introduced. Known as the Natchez Anchor, it was designed and engineered specifically to solve pipeline hold-down problems.

The anchor has a permanent head, eliminating the need for nuts, bolts, washer or installation adapters. The upset square head is sized to fit impact power equipment for fast installation, even in hardest soils.

Available in standard lengths of 72" and 96" with 6", 8", 10" and 15" helix, Natchez Anchors can be supplied in any length up to 20-ft. on custom order. For more information write **Petroleum Anchor Equipment, Inc., 1217 Prairie Avenue, Houston, Texas.**



Evaporator

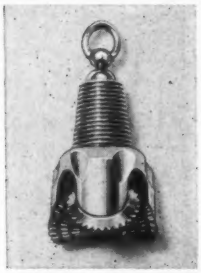
Converts Salt Or Brackish Water With No Fuel Cost

A new line of low-cost, compact heat recovery evaporators converts salt or brackish water to fresh water at no fuel cost, as their best heat source is usually engine jacket water. As these evaporators operate under vacuum, the raw water is boiled at very low temperature (approximately 125° F.), minimizing scale formation.

The exaporators are applicable to a very wide variety of uses—in fact, anywhere there is an internal combustion engine (or another hot water source). Thus, in workboats, offshore drilling rigs and similar installations, fresh water can be made from any available water by connecting the evaporator to the jacket water of a working engine.

Trade-named the "Aquavap," the evaporator can produce as much as 5 gals. per day per unit of hp. Capacities range from 500 to 12,500 gpd. For more information write **American Machine & Foundry Company, Maxim Evaporator Division, Mill Lane, Waterford, Conn.**

Authentic Scale Models— MINIATURE ROCK BITS and DERRICKS



These authentic scale models of oilfield equipment include the world-famous Miniature Rock Bits made by John H. Martin of Brazoria, Texas. Each bit is precision machined and beautifully finished in Nickel or Gold Plate. Each bit is a faithful replica of the real thing, with free turning cones. Both bits and derricks make ideal gifts for customers, for Desk & Derrick Club members, for employees, for friends—for yourself! Order today.

USE THIS HANDY CLIP-OUT ORDER FORM

Please send the following:

Quantity	Style Numbers	Price

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PRICE LIST

MINIATURE ROCK BITS

Style No.	Description	Price
3Y2	Gold plated bit only	$ 5.00
3N2	Nickel plated bit only	5.00
3Y1	Gold plated on strap	6.00
3N1	Nickel plated on strap	6.00

MINIATURE ROCK BITS (Small)

9Y9	Gold plated on tie chain	6.00
9N9	Nickel plated on tie chain	6.00
9Y2	Gold plated bit only	5.00
9N2	Nickel plated bit only	5.00
9Y5	Gold plated on cuff links, pr.	10.00
9N5	Nickel plated on cuff links, pr.	10.00
9Y7	Gold plated on ear screws, pr.	10.00
9N7	Nickel plated on ear screws, pr.	10.00
9Y8	Gold plated on ear wires, pr.	10.00
9N8	Nickel plated on ear wires, pr.	10.00

MINIATURE DERRICKS

DY9	Gold plated on tie chain	6.00
DN9	Nickel plated on tie chain	6.00
DY2	Gold plated derrick only	5.00
DN2	Nickel plated derrick only	5.00
DY7	Gold plated on ear screws, pr.	10.00
DN7	Nickel plated on ear screws, pr.	10.00
DY8	Gold plated on ear wires, pr.	10.00
DN8	Nickel plated on ear wires, pr.	10.00

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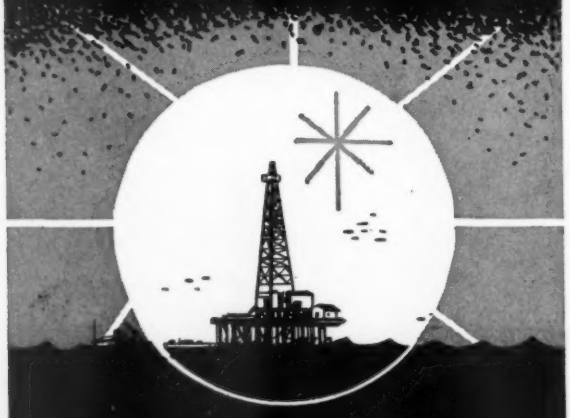

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NEW ORLEANS

The Slush Pit . . .

Little girl: "Mommy, Daddy and I just stopped on the way home. I had a coke and Daddy had a glass of water with an olive in it."

Wife, to toolpusher husband upon opening his anniversary present to her: "Oh, darling, is this a real mink coat?"

Toolpusher husband: "Well, if it's not I'm out $25."

They were drilling somewhere off New Guinea, and a roughneck got washed overboard during a storm, and was captured by cannibals. Each day his arm was cut and the natives would drink his blood. One day when the king passed by, the captured roughneck said, "Look, you can kill me and eat me if you like, but I'm getting sick and tired of getting stuck for the drinks!"

It's hard to keep a good girl down, so the saying goes, but lots of fun trying.

It was the rookie nurse's first day, but she was trying hard to make good on the job. When she checked on the call light from a bedridden drilling superintendent, he asked for a "vase."

Not quite up on this hospital terminology, she nevertheless started off in search but paused at the doorway to look back. "Just how large a bouquet," she asked the drilling superintendent, "do you have?"

A recent poll taken to determine the main reasons why men get up at night brought the following statistics:

10% to raid the ice box.
15% to visit the bathroom.
75% to go home.

A tipsy commuter followed a New Yorker into the subway.

About a half-hour later, he emerged miles away to meet a friend.

"Where ya been?" he asked. "I got tired of waiting."

"Down in some guy's cellar," he answered. "And boy, has he got a set of trains!"

Madame had just had her hair cut and remarked to her husband: "Now I don't look like a little old lady any more."

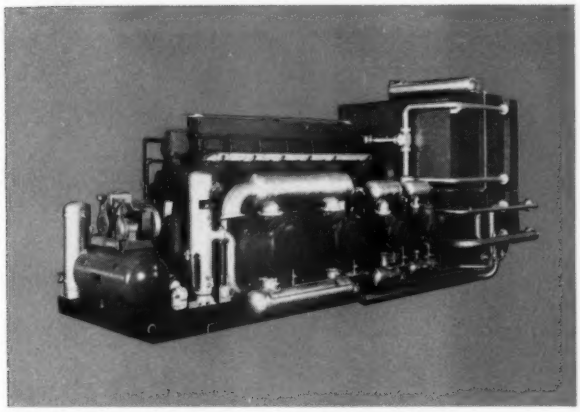
"No," replied her husband, "Now you look like a little old man."

"You say you can operate the rig by remote control, too?"

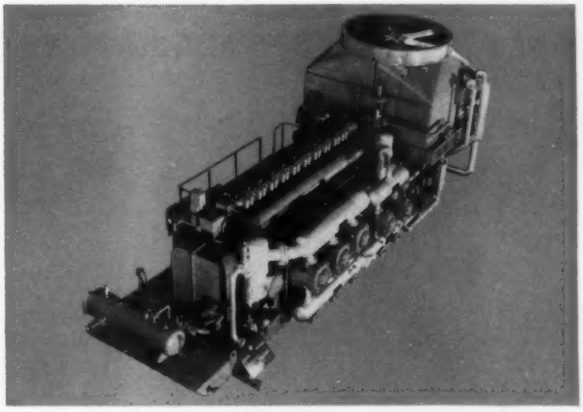
Southwest

DESIGNS, ENGINEERS, BUILDS AND INSTALLS PACKAGED COMPRESSOR PLANTS

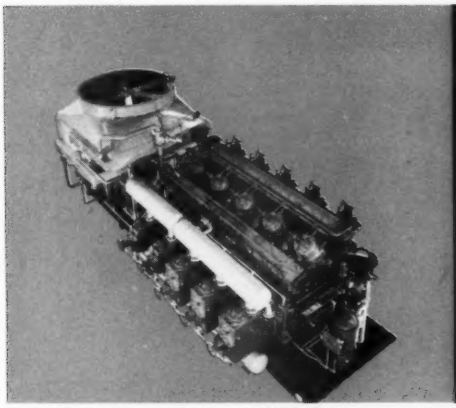
Using the Compressor You Select



A 660 hp Ingersoll-Rand 12-SVG-3 compressor packaged by Southwest Industries, is in gas injection service in West Texas.



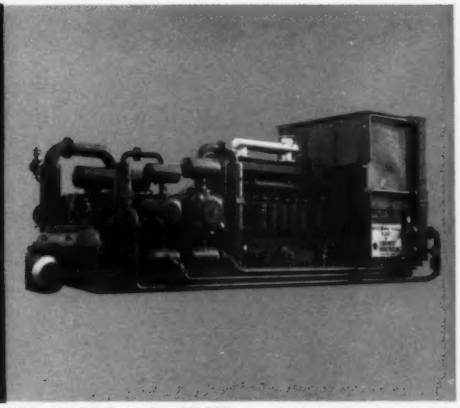
A Clark HMB-10 compressor packaged by Southwest for a major oil company is in service for gas sales boosting in South Louisiana.



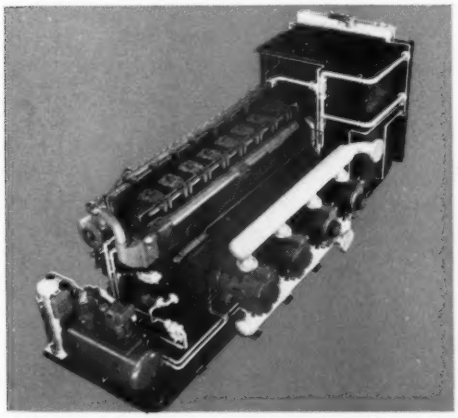
This 660 hp Cooper-Bessemer GMXD-10 compressor has been packaged by Southwest for gas gathering service on an offshore platform in South Louisiana.

SOUTHWEST INDUSTRIES, INC.

P. O. Box 19188, Houston 24, Texas



White W-64/Superior 8G-825 gas engine compressor unit in gas gathering service in West Texas.



This 750 hp Worthington SLHC-8 compressor in a Southwest Packaged Plant is being used by a major gas transmission company for pipeline boosting in East Texas.

PLANTS:
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Calgary, Alberta, Canada
Mexico, D.F., Mexico

BRANCH OFFICES:
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Mexico, D.F., Mexico

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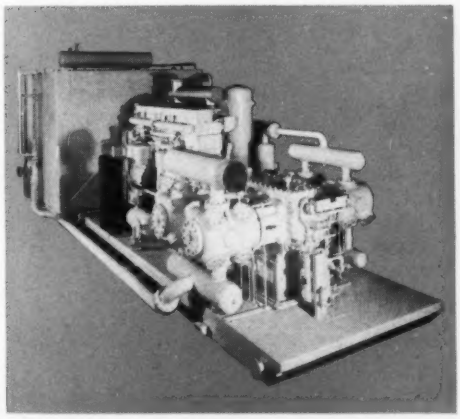
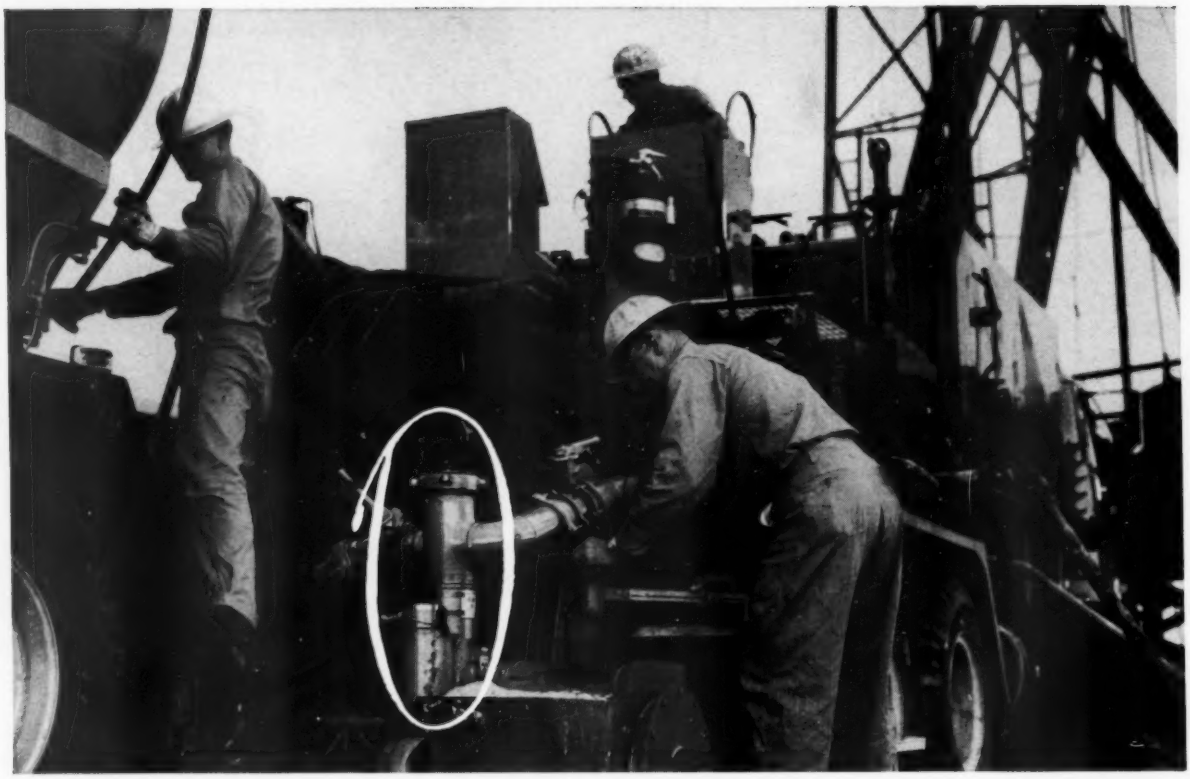


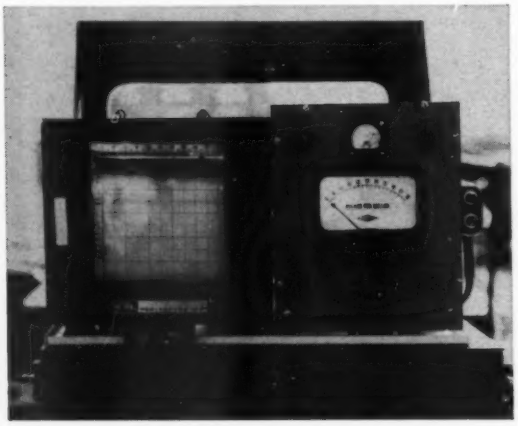
White W-64/Superior 8G-825 gas engine compressor unit in gas gathering service in Southeast Texas.

Also designers, manufacturers and constructors of Packaged Natural Gasoline Plants, Water Flood Plants, Inert Gas Generators, CO_2 and H_2S Removal Units, and "Tenex" Exhaust Gas Injection Units.



here is the start of good slurry control

This radiation source supplies gamma rays to operate the Densitometer installed on Dowell Twin Pump Cementers.



The Dowell Densitometer provides two important benefits: (1) It measures the density of the main cement slurry stream. (2) It gives an immediate reading.

1. By measuring the main slurry stream rather than a bypassed sample, Dowell avoids any question as to whether the sample is representative of the main stream.

2. By giving an almost instant reading, the Dowell Densitometer makes possible quick corrections of slurry weight. Slurry weight controls can be changed immediately and the corrected slurry can be checked for weight within 20 seconds.

The Dowell Densitometer provides slurry weight readings on the meter which are accurate to within $\pm$ 0.1 pound per gallon.

If the operator desires, a continuous record of slurry weight can be made for his permanent well file.

The Densitometer, using the radiation source illustrated above, is another important reason why more and more operators are specifying Dowell for oilwell cementing. Ask your Dowell representative for full information. Dowell, Tulsa 1, Oklahoma.

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